

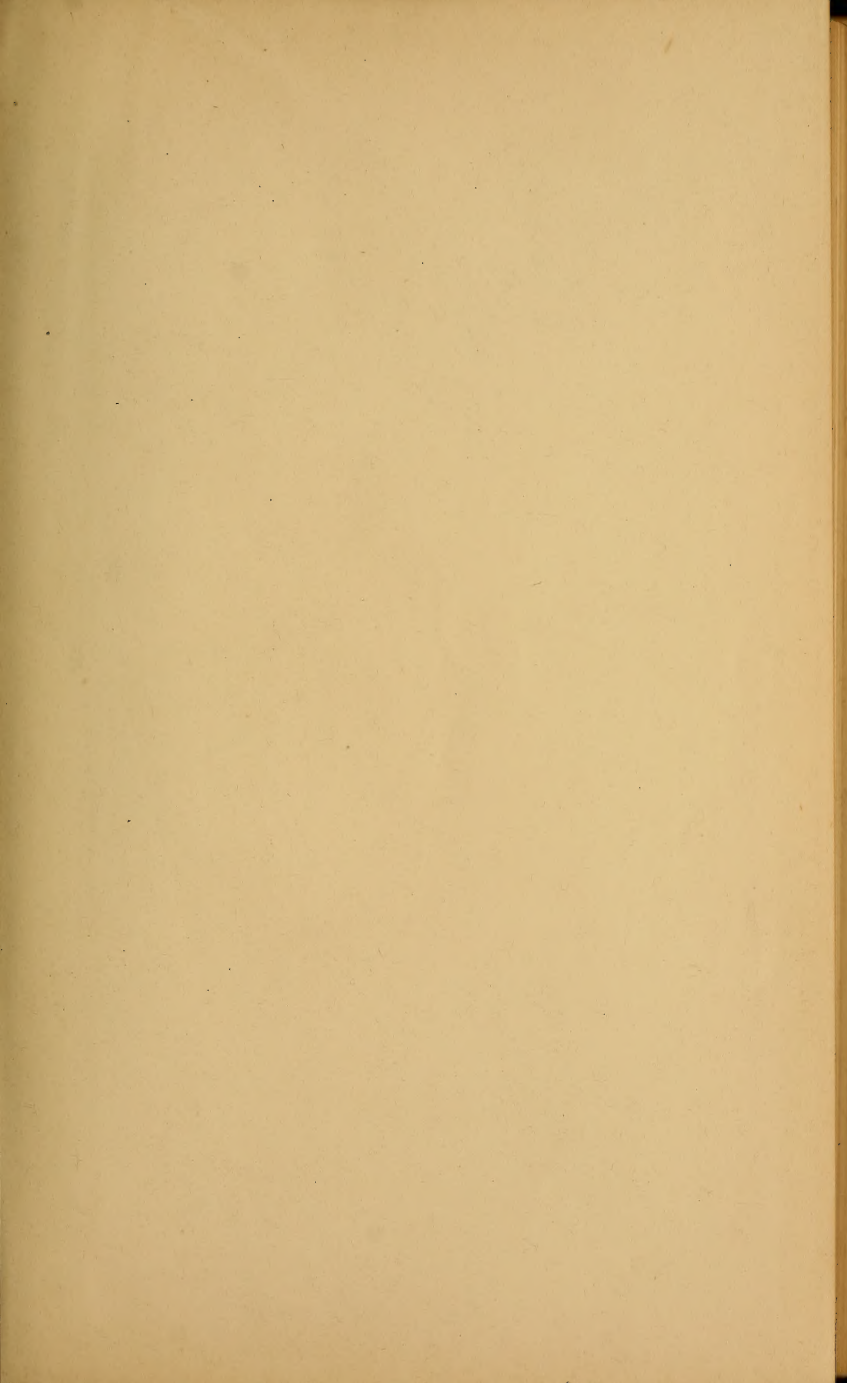
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Nævus Lipomatodes.
(From a Photograph of one of the author's patients.)
(Frontispiece.)

A PRACTICAL TREATISE

ON

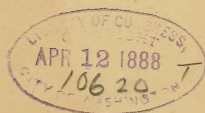
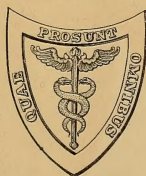
DISEASES OF THE SKIN,

FOR THE USE OF STUDENTS AND PRACTITIONERS.

SECOND EDITION,
THOROUGHLY REVISED AND ENLARGED.

BY
JAMES NEVINS HYDE, A.M., M.D.,

PROFESSOR OF SKIN AND VENEREAL DISEASES, RUSH MEDICAL COLLEGE, CHICAGO; DERMATOLOGIST
TO THE MICHAEL REESE HOSPITAL, CHICAGO; AND ONE OF THE PHYSICIANS FOR
DISEASES OF THE SKIN TO THE PRESBYTERIAN HOSPITAL, CHICAGO.



PHILADELPHIA:
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TO

MORIZ KAPOSÍ,

PROFESSOR OF DERMATOLOGY IN THE UNIVERSITY OF VIENNA, AUSTRIA,

THESE PAGES ARE, WITH HIS GENEROUS CONSENT,

Respectfully Inscribed

BY

THE AUTHOR.

PREFACE TO THE SECOND EDITION.

THE work of revision, required by exhaustion of the first and the demand for a second edition of this treatise, has been carefully conducted with results that are declared upon every page here presented to the reader. There have been added new chapters devoted to the description of several cutaneous maladies whose names were a few years ago unknown; others have been wholly rewritten; none has been left untouched. The need of conforming to the classification and nomenclature of diseases of the skin adopted by the American Dermatological Association, has involved a labor which it is believed has largely added to the practical worth of the book. Personal observation of more than ten thousand cases of cutaneous diseases in both public and private practice, has furnished an experience which has been made to serve here as far as was practicable in the illumination of the teaching embodied in almost every paragraph. Nearly one hundred pages have thus been added, together with a number of new wood cuts and two portraits of rare diseases of the skin in colored plates.

The author is anxious to express his sense of gratitude to the profession for the favorable reception accorded to the first edition of the treatise; and desires to acknowledge his great obligation in the preparation of its successor, to the later authors especially, in cutaneous medicine, whose works are named in the brief but selected bibliography appended at the close of the volume.

He has also to extend his thanks to Dr. Frederick W. Mercer, and to Dr. Albert J. Ochsner of the Pathological Laboratory of the College, for aid in the preparation of specimens and drawings; as also to his assistant, Dr. Frank H. Montgomery, for services rendered while the work has been passing through the press.

PREFACE TO THE FIRST EDITION.

THE increasing recognition of the gravity of many cutaneous disorders, and of the importance of their accurate study, is shown by the rapidly augmenting number of observers in this department of medicine, and by the numerous valuable contributions constantly made to it, both in this country and abroad. For the convenience of the general practitioner it therefore becomes necessary at shortly recurring intervals that some one should attempt the task of presenting in a comprehensive form the results of the latest observation and experience.

The author is aware of the degree to which he must claim indulgence in the present effort to perform this duty. The extent of the subject and the limitations of a single volume, require the omission of much detail of secondary importance. With regard to that which it has seemed proper to include, he has endeavored to write concisely, to set forth only what can be held as the truth, to be frank in the admission of the weakness with which the most skilful physician stands in the presence of many grave and not a few benign disorders, and to cultivate a wholesome doubt of that which has not been shown to be worthy of trust. How far he may have fallen short of attaining this end these pages will declare.

He has to express his indebtedness to the standard works on dermatology of foreign authorship, especially the exhaustive and invaluable work of Hebra, and the Lectures on the Diseases of the Skin lately given to the profession by Professor Kaposi, which contain the mature conclusions of his vast experience. With these should be named the writings of Sir Erasmus Wilson, Dr. Tilbury Fox, Dr. Neumann, Dr. McCall Anderson, Dr. Behrend, and the syphilographers, to whose works special reference is made in the chapter devoted to their theme. Among the books of American authorship, he is under special obligation to the sterling work of Dr. Duhring, of Philadelphia, and to the excellent treatises of Drs. Piffard, Fox, and Bulkley, of New York.

All these are named by title in the brief and selected bibliography

appended at the close of the volume. No less valuable aid has been obtained by consulting the papers of American and foreign authors contained in the journals specially devoted to diseases of the skin, among which, as the representatives of the English tongue, the *Archives of Dermatology*, lately edited by Dr. Bulkley, and the current *Journal of Cutaneous and Venereal Diseases*, edited by Drs. Piffard and Morrow, deserve special mention.

The author is also very greatly indebted to Dr. Charles Heitzmann, of New York, not merely for the information gathered from the study of his original researches in pathology, but particularly for his kindness in furnishing advanced sheets of the chapter on the skin, in his work on *Microscopic Morphology*, which has just issued from the press. From this work, with Dr. Heitzmann's permission, several illustrations have been borrowed, which appear in the chapter on anatomy, the details of which subject are also very largely drawn from the same rich store. The first of the drawings representing sections of the skin, is from the faithful pencil of Dr. H. D. Schmidt, of New Orleans, who, in order to produce it, interrupted, without hesitation, his arduous labors in connection with the subject of pathology. To his colleague, also, Dr. Frederick W. Mercer, of Chicago, the author is glad to express his indebtedness for the skill with which a number of pathological specimens have been prepared and mounted for special study, and original drawings produced for the first and several subsequent chapters of the book. To Dr. Duhring, of Philadelphia, he is further indebted for valuable suggestions made during the course of preparation of the manuscript.

Medicinal measures are, in these pages, expressed in terms of both the apothecaries' scale and the metric system. It is to be noted, however, that the latter are not in all cases literal translations of the terms of the former, many of the formulæ, especially those for preparations designed to be topically employed, being metrically composed, the relative proportions of the ingredients remaining unchanged.

The changes which it has been advisable to make, in the matter of nomenclature, classification, and other equally important subjects, are concisely explained in the chapters devoted to each.

CHICAGO, No. 240 Wabash Avenue,
February, 1883.

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I.

ANATOMY AND PHYSIOLOGY OF THE SKIN.

THE skin of the human body is its living envelope, intimately associated with underlying structures, and by its situation brought into intimate relation also with the external world. It is a complex, elastic, and sensitive organ, varying greatly in different conditions of climate, age, sex, health, and race; and differing also in the characteristics exhibited in different localities upon the same individual. Thus, in color there is a wide range between the fair skin of the blonde and the black of the negro, between the rosy pink of the infant's palm and the dark brown hue of the genital region of the aged. The skin varies also in pliability and thickness, being delicate and lax over the lids, the lips, and the prepuce; and much thicker and more firmly attached over the palms and the soles.

It is important to note that the appearance of the skin, even in conditions of health, also changes within appreciable limits. It is the exposed parts, such as the face, which the eye of the physician most frequently searches, and which betray evidence of mental emotions, physiological fluxes, sedentary or active habits of life, and fatigue or unusual conditions of vigor.

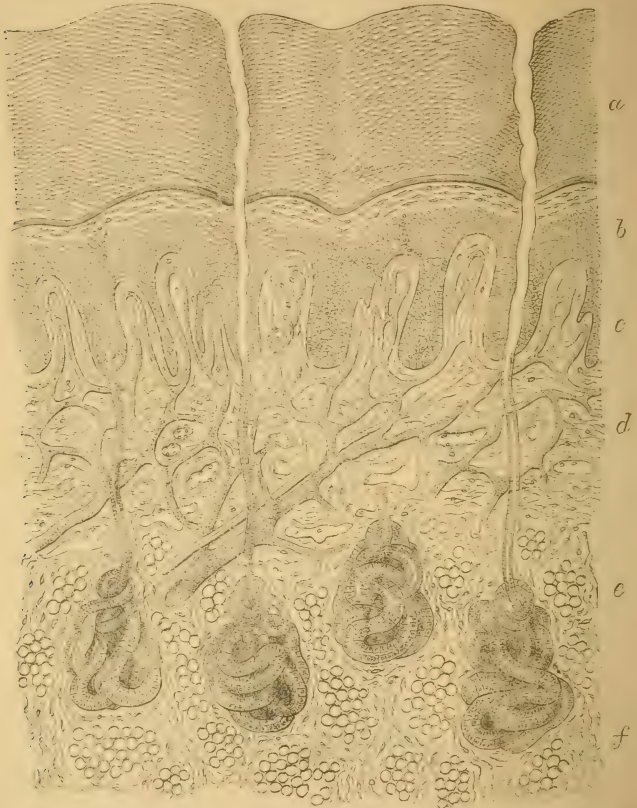
Viewed externally, the skin is seen to be traversed by superficial and deeper furrows, dotted by numerous depressions representing the mouths of its follicles, and provided very generally with coarse or fine downy hairs which are in some parts represented by a growth sufficient to conceal the skin from view. This pilary growth serves not merely as an ornament of the body, but also as a protection to some of its regions most sensitive to thermal changes.

By its extraordinary sensitiveness to different degrees of temperature and to the physical properties of the bodies with which it is brought into contact, the skin becomes, even when unaided by the eye, a valuable means of preserving the human frame from external injury. This protective function is, in part, related to the horny character of its outer layer, as a consequence of which the loss of essential fluids and the ingress of noxious substances are equally restricted.

One of the most important functions of the skin is the part which it plays in the regulation of the bodily temperature. The temperature variations at its surface, modified naturally by the character and quantity of the clothing, when such is worn, produce corresponding variations in the smooth muscles and contractile bloodvessels of the skin. By enlargement or diminution of the lumen of these vessels, whether resulting directly from the action of heat or cold at the

surface, or indirectly through an effect upon the vasomotor centres, large quantities of blood are brought to or removed from the superficies of the body. In the one case, the blood is cooled by evaporation

FIG. 1.



Vertical section of the skin of the thumb, partly diagrammatic. *a*, stratum corneum, traversed by ducts of two glands; *b*, rete mucosum with prolongations extending between papillae beneath; between *a* and *b* is seen the stratum lucidum; *c*, papillary layer of corium. Near the centre of the figure is seen a nervous papilla; *d*, reticular layer of corium with vascular plexus, nucleated connective tissue and interspaces; *e*, four coil-glands; *f*, fat-globules in the meshes of the connective tissue.

at the surface; in the other, the loss of heat by such evaporation is greatly restricted. This process is materially influenced by acceleration or retardation of the heart's action, whether produced by moral

or physical causes. It is also modified by the occurrence of sweating, as a result of which heat in varying amounts is rendered latent; and either watery vapor escapes from the surface or sweat is exuded in drops, the aggregate of which may be several pounds in weight in the course of twenty-four hours.

In a limited degree, the skin is capable of acting as a respiratory agent, eliminating carbonic acid gas with watery vapor, and possibly also absorbing oxygen in small amount. Its power of absorbing aliments, medicaments, and toxic substances, in either gaseous or liquid state, is greatly restricted so long as its horny external covering is intact. Such absorption, when it occurs, is probably effected through the portal of the ducts of the cutaneous glands. Gaseous and volatile substances, as well as several of the oils and fats, may at times penetrate the skin through these avenues.

The skin is provided with a natural unguent, by which, in a state of health, it is constantly anointed. The fatty and oily secretions of the skin are concerned, not merely in the anointing of the general surface and of the hairs, but also in the regulation of the bodily temperature, by preventing the maceration of the tissues by the sweat.

The complex organ which is called the skin is essential to the life of the individual. The sexual, and possibly other organs of the human body, may have their functions arrested, or be even obliterated by destructive processes, and life still continue; but if the functions of the skin were all suspended for a sufficient period of time, the result would be fatal. In its important relations alone to the complicated processes by which the heat of the body is maintained at a relatively fixed standard, the skin exhibits its importance to the general economy. It is thus seen to be, not an isolated membrane stretched mechanically over an artificial machine, but one of several living and potential systems of the body, each of which is in intimate union with all others.

The integument of the body, when studied by the aid of the microscope, is found to be composed of several organic parts. These are: the subcutaneous connective tissue resting on the deeper structures of the body; then, more externally, the corium, or true skin; lastly, an outermost coat, the epidermis, or cuticle. Beside these, the skin contains coil-glands, sebaceous glands, hairs, nails, blood- and lymph-vessels, muscles, pigment, and nerves. It will be instructive to study the deeper parts before those more superficially disposed, as their mutual relations are thus made clearer.

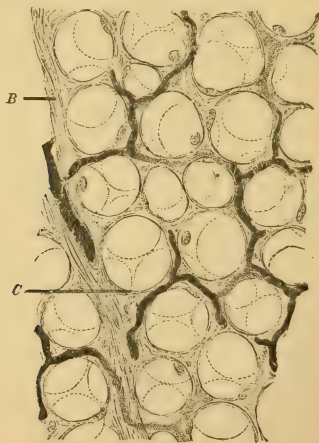
Subcutaneous Tissue.

The subcutaneous tissue is differentiated from the corium between the third and fourth months of fetal life. It is a structure serving a mechanical purpose as a receptacle for fat, and for the support of vessels and nerves passing from the tissues beneath to the corium, which lies next above it. It contains, also, coil-glands, some of the

hair-follicles more deeply seated than their fellows, and Pacinian corpuscles. There is no distinct boundary line between its upper limits and the overlying corium, to which it projects columnar masses of fat, extending obliquely to the coil-glands and the hair-follicles above, often with lateral, horizontally disposed prolongations of similar shape. It is built up of loose connective-tissue bundles, prolonged from the aponeuroses, fasciæ, and the membranes lying beneath.

It is firmly attached to the skin over the extensor surfaces of the articulations, the palms, the soles, and the groins by short and coarse bundles, between which are single or multilocular spaces lined with endothelia, secreting a mucoid fluid. These are the bursæ mucosæ. Elsewhere, as in the eyelids, the penis, the scrotum, and the auricle of the ear, the attachment to the skin is by loose, delicate connective tissue, containing no fat-globules. All other fibrous tracts are arranged obliquely, admit, by their extension, of various degrees of pliability, and inclose rhomboidal spaces containing more or less numerous fat-globules. These are lobulated, bounded by a delicate, fibrous connective tissue, and abundantly supplied with bloodvessels. This is termed the panniculus adiposus.

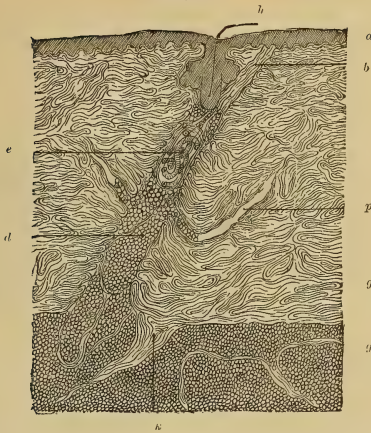
FIG. 2.



Subcutaneous fat tissue, the fat having been extracted by turpentine. *B*, bundles of fibrous connective tissue, carrying injected bloodvessels; *C*, capsules of fat-globules, with oblong nuclei. Magnified 500 diameters. (After HEITZMANN.)

The deposit of fat in the body is greatly reduced in all diseases productive of emaciation, but never wholly disappears in life. In cases of obesity, fat is deposited in excess of normal limits, and may then be concerned in the production or aggravation of disease. It is

FIG. 3.



Columnæ adiposæ. *a*, epidermis; *b*, erector pili muscle; *p*, horizontal prolongations of the column; *c*, coil-gland suspended in the latter; *f*, fibrous bundles of corium; *g*, panniculus adiposus; *k*, band of fibrous tissue extending to the latter. (After WARREN.)

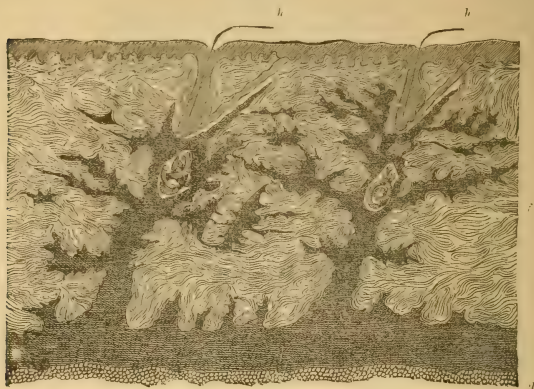
largely due to the greater or less volume of the panniculus adiposus, that the natural outlines of the body are made graceful and attractive to the eye, or the reverse.

The Corium.

THE CORIUM, DERMA, CUTIS VERA, or TRUE SKIN, is composed of bundles of fibres of connective tissue, whose decussations produce a dense felt-work, coarsest toward the subcutaneous tissue, upon which it rests inferiorly, and finest superiorly in the outermost portion, which is in contact with the epidermis above. Its general characteristics are well described by Heitzmann as follows: "The bundles are bounded in many instances by a very dense basis-substance, representing the elastic fibres, and separated from each other by narrow layers of a cement-substance (Thomsa), which, in its chemical features, is kindred to the glue-giving basis-substance of the fibrous connective tissue in general. In this cement-substance there are imbedded delicate formations of protoplasm, greatly varying in amount in the derma of persons of different age. They represent formations analogous to nuclei, formerly called 'connective-tissue cells,' at present considered as compact masses, or delicate reticular layers of living matter, which, with a power of five hundred diameters of the microscope, look finely granular. The whole glue-giving basis-substance of the bundles is traversed by a delicate reticulum of living matter, in direct union with all protoplasmic formations between the bundles, with all blood- and lymph-vessels, with all nerves, and with the

columnar epithelia, nearest to the capillary layer. Only the meshes of the network of the living matter contain the glue-giving basis-substance, which, as the history of development of the connective tissue demonstrates, is produced by a chemical alteration of the life-

FIG. 4.



Vertical section of skin after injection, from beneath, of areolar tissue with Berlin blue.
e, epidermis; *f*, corium; *g*, panniculus adiposus. (After WARREN.)

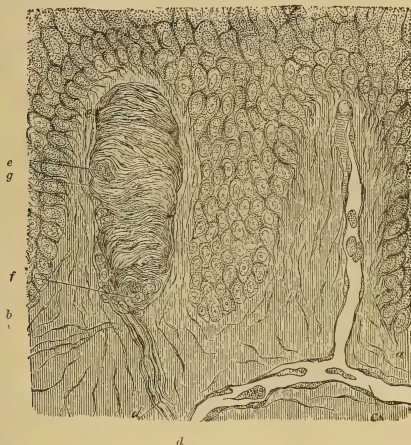
less protoplasmic fluid itself. The bundles of the connective tissue of the derma accompany all elongations of an epithelial character. They produce the follicles around the root-sheaths of the hair, the capsules around the coil-glands, and the layers which surround their ducts. The bundles of connective tissue are traversed in an oblique direction by bundles of smooth muscular fibres, by relatively scanty bloodvessels in the derma, by numerous capillaries in the papillary layer, by a system of lymphatics, and by numerous medullated and non-medullated nerves."

PARS RETICULARIS.—The reticular layer of the corium is made up, as has been seen, of interlacing connective-tissue bundles, with interspaces increasingly larger from without inward. The fineness of the bundles increases, on the contrary, from within outward, being finest where the minute papillæ of the corium project into the rete, and coarsest near the subcutaneous tissue.

PARS PAPILLARIS.—The papillary layer of the corium lies in contact with the rete above, and is connected below with the deeper reticular portion of the true skin. Between the rete and the papillæ of the derma a hyaline substance is interposed which Unna believes may be identical with the so-called cement-substance described as separating the fibrillæ of the corium. The basal membrane once

thought to be stretched between the rete mucosum of the epidermis and the papillary layer of the corium, cannot be demonstrated to exist.

FIG. 5.



Vascular and nervous papillæ. *a*, vessel; *b*, nervous papilla; *c*, vessel; *d*, nerve-fibre; *e*, corpusculum tactus; *f*, transversely divided nervous filaments; *g*, epithelia of rete. (After BIESIADECKI.)

The name of this portion of the derma is intended to describe its chief characteristic, the existence of numerous digital prolongations of the corium, made up of delicate fibres of connective tissue, which do not interlace, and are abundantly provided with nuclei. The papillæ spring each from a single, or several from a common, ovoid base; their bulbous, conical, or blunt apices reaching into the rete, which also dips down between them. They differ in size in different parts of the body, and also in their disposition and shape, being in places arranged in linear series, and in others in concentric whorls, with definite centres, producing thus crossing furrows, visible to the naked eye as markings upon the outer surface of the epidermis.

In horizontal sections of the skin, the papillæ, being transversely divided, appear as circular or ovoid areas, in which can be recognized centrally a transversely or obliquely divided capillary loop. Between these areas the inter-papillary reticulum of the mucous layer is seen.

According to Unna, who bases his statements upon the wide variation between the largest sized papillæ and their entire absence in some regions, the papillary layer of the corium represents merely "an extremely variable border-phenomenon." Certain it is that the growth of the rete downward and of the corium upward results in mutual effects of pressure and counter-pressure whose equilibrium is constantly adjusted by the mechanical and vital necessities of such union.

When the papillæ are completely exposed, after the removal of the overlying so-called cement-substance and of the epidermis above, their exterior surface is seen to be uniformly marked with series after series of alternating furrows and ridges of exceeding delicacy, more or less concentrically disposed. These are supposed by Unna to be grooves with ridges on either side, into which are admitted corresponding dentations to be recognized on the under surface of the layer of epithelial cells next to the corium.

FIG. 6.



Scalp of a colored man—horizontal section. *R*, rete mucosum; *Pi*, row of columnar epithelia, cut obliquely, supplied with dark-brown pigment-granules; *Pa*, papilla, cut transversely; *D*, derma. Magnified 500 diameters. (After HEITZMANN.)

Two varieties of papillæ are distinguished—the vascular and the nervous; the former containing the terminal loops of a minute artery and vein; and the latter, the ultimate filamentous termination of a non-medullated nerve-fibre.

The greater number of papillæ are of the vascular variety, being traversed by a vertically disposed loop of vessels, consisting of an arterial and venous capillary. Their office is evidently not merely to supply nutriment for the epidermis above, but also to provide for the cooling of the blood when brought in large quantities to the surface of the body. Occasionally, two or more of such loops can be recognized in a single papilla.

The nervous papillæ contain the tactile corpuscles, which subserve an important purpose in providing for the insensibility of the integument. These are described in connection with the nerves of the skin. It is to be noted that ultimate terminations of nerves can be recognized in the vascular papillæ, and that at times minute vascular loops can be seen in the papillæ largely occupied with the corpuscles of touch.

The Epidermis.

THE EPIDERMIS, SCARF-SKIN, or CUTICLE, is the most external of the several membranes of the body, being in close contact on one side with the corium, or true skin, and exposed on the other to the

atmosphere by which it is surrounded. The latter surface is therefore relatively drier, while the former is constantly moistened by fluids from the vessels which ramify beneath it.

No genetic relation can be established between the epidermis and the corium, intimate as is their union and mutual relationship. The former is developed from the ectoderm, the latter from a superficial layer of the mesoblast. Their behavior both in health and disease is marked by the widest difference.

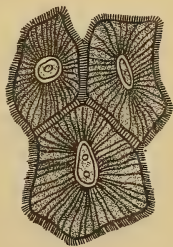
The epidermis differs greatly in thickness in different portions of the body, that, for example, of the palms and soles exceeding, in vertical section, that which covers the dorsum of these same organs, and that protecting such sensitive parts as the lids, lips, temples, and prepuce.

The epidermis is composed of the following layers, named in order from within outward: the stratum mucosum, the stratum granulosum, the stratum lucidum, and the stratum corneum. All of these several strata, or layers, are histogenetically derived from the one which is deepest in situation.

THE STRATUM MUCOSUM, MUCOUS LAYER, PRICKLE-LAYER, RETE MUCOSUM, RETE MALPIGHII or MALPIGHIANUM, is the deepest of the epidermal layers, and rests upon the corium below. The latter is intimately united with it by a series of interdigitations which are commonly described as prolongations of the derma into the substance of the rete, but it is equally true that the rete sends down prolongations into the derma. The two, for reasons which doubtless originate in the need of an intimate union to resist friction and to insure vascular supply, are thus closely locked together.

The stratum mucosum is built up of nucleated epithelia, epithelial cells, or corpuscles, polyhedral in outline and diffusely colored. These are masses of granular protoplasm, living matter, which by their relations to each other form a protoplasmic network enveloping the entire surface of the body and lining all channels and cavities which are in direct or indirect connection with the surface. These elements are flattened by reason of their apposition, and separated from each other by an intercellular substance, which has been described as a "cement-substance." There is, without question, a system of channels between the epithelia, by which the fluids of nutrition are conveyed from cell to cell. All are, however, uninterruptedly united to each other by means of delicate spokes, known as prickles, spines, or thorns. The living matter, which produces a delicate reticulum within each protoplasmic body, its points of intersection being termed nuclei, nucleoli, and granules, furnishes the filaments already described, which thus pro-

FIG. 7.



Prickle-cells of the mucous layer.

duce continuity through all the living layers of the epithelial elements, as well as through the underlying layers of the connective tissue. The epithelia are unprovided with either blood- or lymph-vessels; but, when living, are supplied with a large number of nerves, which, in the shape of very minute beaded fibres, traverse the intercellular substance, and are in direct communication with the reticulum of living matter within the protoplasmic bodies themselves.

The living masses of protoplasm, just described, play the most important part in all the pathological and physiological processes observed in the skin. It is probable that, in the embryo, all the appendages of the skin are formed directly by their assimilative and reproductive processes; and it is certain that, in health and disease, they furnish the organic matter of all secretions.

The epithelia next the corium are columnar in form, of a diffuse brownish hue, and arranged with their long axes nearly at right angles to the plane of that portion of the corium upon which they are superimposed. More externally they have pronounced polyhedral outlines, and the cell nucleus of each is large and distinct.

Above this columnar-shaped pavement, irregularly rounded and cubical epithelia, with large, single or multiple, spherical nuclei, are packed between the papillæ of the corium, rising from below; and horizontally flattened bodies of the same general appearance lie in strata above the level of the conical apices of the papillæ. Here the threads of protoplasm between the cells are voluminous, forming thick and broad strands connecting the elements. Between these, outwandered leucocytes may at times be recognized. In the more externally disposed rows of epithelia the prickles become shorter and the cells flatter, till finally they lie in a uniformly horizontal plane.

THE STRATUM GRANULOSUM, or GRANULAR LAYER of the epidermis, is built up of one or two, rarely more, rows of horizontally disposed granular bodies, united to each other by short and broad threads. Between these, the intercellular spaces are so contracted that nutritive fluids cannot filter easily outward; and the nuclei of the cells are usually shrunken in size. These have been carefully studied by Ranvier, Kölliker, Waldeyer, and others. According to these observers, the roundish granules which give this layer of epithelium its peculiar name and appearance, consist of eleidin, or kerato-hyalin, a substance essential to the process of cornification in the elements making up the horny layer of the skin, nails, etc. These granules begin to appear in the neighborhood of the nuclei of some of the large prickle-cells in the rete, but are best studied in the granular layer, whose cells are often completely filled with them. According to Unna, the color of the skin in the white races depends upon this layer alone.

THE STRATUM LUCIDUM, or SEPTUM LUCIDUM, of Oehl, lies immediately above the stratum granulosum, and appears under the microscope as a delicate, brightly colored line, consisting of two or

three rows of transversely disposed, glistening epithelia, differing in translucency from those situated on either side. It thus marks with tolerable distinctness the boundary lines of the rows of cells above and below it. Its epithelial bodies have suddenly lost the refractive, shining granules of kerato-hyalin, conspicuous in the stratum granulosum below. These granules are generally supposed to have disappeared in consequence of their solution in the protoplasm of the cell-body, which has thus acquired an added brilliancy and clearness.

THE STRATUM CORNEUM, or HORNY LAYER of the epidermis, is its outermost and widest layer, extending from the stratum lucidum below to the external environments of the body. In its lower portion, the polygonal plates of which it is composed indicate very clearly their relationship to the cells in the prickle-layer. The nuclei appear in places, only, as shrivelled and inconspicuous relics of the protoplasmic threads. Occasionally, on the edges, rudiments of the prickle-threads may still be recognized. Still more externally, the dried, lifeless, and horn-like plates of which this layer is composed, become mere cornified shells, generally lying in horizontal strata, more curled and wrinkled as the surface of the skin is reached, often imbricated, but preserving the polygonal outlines of epithelia relieved of the forces of pressure and counter-pressure exerted in the deeper parts of the epidermis. These elements are rarely pigmented, save in the case of the negro, where the intense staining of the deepest parts of the mucous layer is to a degree spread to the external strata. Such staining in the colored races is produced by granules of pigment arranged about an unaffected nucleus in the prickle-cells.

According to Unna, after digestion with pepsin and trypsin, it is seen that the horny cells are connected by more or less persistent threads, visible after more prolonged digestion as a large-meshed reticulum, with strands formed from a double row of cornified filaments united by short horny bridges.

Bloodvessels.

THE ARTERIES AND VEINS supplying the skin spring from subcutaneous branches which penetrate the fasciæ beneath, and proceed by subdivision to be distributed to all portions of the integument below the epidermis, the distribution being especially abundant about the glands and follicles of the skin, and the inferior and superior parts of the corium. They are always more abundant upon the flexor than the extensor faces of the extremities. Just beneath the papillary layer of the corium there is a minutely ramifying plexus of fine capillaries, whose loops extend into the papillæ above, as already described. This and the coarser plexus in the deeper portion of the derma are so well defined that they might well be designated as superior and inferior partes vasculares of the corium. Still a third vascular district is found in the subcutaneous connective tissue where the vessels are numerous.

The arterioles which supply the sweat-glands surround the coils of the latter in a delicate basket-like plexus, and terminate in two or three veinlets, one of which always accompanies the duct of the gland upward as far as the papillary layer, where it anastomoses with the vessels of that part of the skin. The ascending arterioles supply also the sebaceous glands and hair-follicles; and, finally, breaking up into smaller and yet smaller branches, furnish a single or double capillary loop to each papilla. The capillaries of the papillary layer anastomose freely with those transversely arranged in the upper portion of the hair-follicle, loops from which also pass to the sebaceous glands. The hair-papilla has a vascular supply similar to that of the other papillæ of the corium.

Unna divides the vessels distributed to the skin into the papillary system, and the system of the coil-glands and fat tissue. The former includes the ascending loops which traverse the vascular papillæ, and the branches supplying lower portions of the corium. The latter embraces the vessels running upward to the coil-glands and downward to the fat tissue. In the papillary vascular system, the arteries are narrow and the veins wide. The vessels consist merely of an endothelial tube augmented, as the subcutaneous tissue is reached, by both media and adventitia. According to Hoyer, there is a singular duplex arrangement of vessels in the distal phalanges of both fingers and toes, in consequence of which there is a direct communication between the arteries and veins.

Vasomotor nerves are twined around these vessels in all their ramifications. The whole vascular system, as thus arranged, plays a most important part in all the healthy and morbid processes which occur in the skin, as well as in the sudden physiological changes distinguishable to the eye in the phenomena of blanching and blushing.

Lymphatic Vessels.

The skin in all its parts is provided with a system of lymphatic channels, designed to subserve the necessities of the important processes of absorption, and traversed by lymph whose currents are continuously directed to the large vessels of the structures beneath the skin. Unna divides these channels into: first, juice-spaces, provided or not with independent walls, usually the latter, and not freely communicating with the endothelium-lined vessels; second, lymphatic vessels proper, which communicate directly with the bloodvessels.

The juice- or lymph-spaces separate the epithelial bodies that make up the stratum mucosum of the epidermis, and also extend between the protoplasmic threads or prickles that unite them. Such conduits may be regarded either as delicate excavations in the so-called cement-substance between the epithelia, or as irregular channels in a softish, viscid, albuminoid, and readily coagulable substance existing between the protoplasmic threads. In the latter event, these spaces would be comparable to the impressions made by thrusting at random a pencil into a mass of soft putty. At times, this intercellular substance

seems capable of obstructing the conduits by which it is tunnelled. These same juice-spaces exist in the papillæ of the corium, and encircle the different glands, hair-follicles, and nail-beds of the skin. They also sheathe the connective-tissue fibrillæ of the corium and surround the fat-cells.

The lymphatic vessels are relatively few, but form a continuous meshwork with transversely and vertically disposed branches supplying all parts of the skin below the epidermis. The juice-spaces communicate with these vessels in the papillary portion of the corium through minute orifices in the vascular walls, the vessels themselves being here represented by blind terminal loops. As they pass to the deeper portions of the corium and below it, these vessels increase in size.

The current of the lymph is from the papillary apices in every direction to all parts of the rete, like the currents in the delta of a river, a reflux occurring at the lower limit of the interpapillary depressions of the rete downward, possibly through the sweat-pores which traverse the epidermis at these points. Thence the current flows freely downward to the lymphatic vessels in the corium, but the stream from the juice-spaces about the coil-glands and fat tissue is retarded by reason of a more restricted communication with the lymphatic vessels below. In consequence of the retardation due to this anatomical peculiarity, the formation of fat by filtration is facilitated.

Nerves.

Non-medullated and medullated nerve-fibres, each in places being substituted for the other, are supplied to the skin from horizontally disposed bundles of nervous twigs in the subcutaneous tissue. These traverse the corium in connection with the bloodvessels, and become finer as they ascend, till they form a subepithelial plexus just below the epidermis.

Exceedingly delicate NON-MEDULLATED FIBRES penetrate to the epidermis between the epithelia in great abundance. Here, traversing the intercellular substance by the side of the juice-spaces, they either terminate between the prickle cells as ultimate bulbous terminations of finely beaded fibrillæ, or they penetrate the epithelia themselves in pairs. Each prickle-cell is supplied with a pair of these beaded filaments, which may be either applied to the nucleus of the cell, or be seen to encircle the nucleus more or less completely. Above the stratum granulosum these nervous threads cannot be recognized.

Similar nervous filaments are supplied to the sheaths of the hairs and the ducts of the coil-glands. It is by means of these numerous and delicate fibres that the perception of sensation in the skin is accomplished.

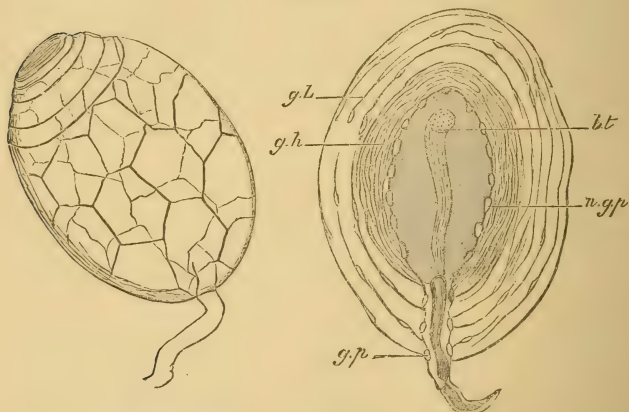
Motor filaments, discovered by Thomsa, are also distributed to the sheaths of the bloodvessels, in which they are finally lost. Other motor filaments supply the muscles, and trophic nerves are distributed

to all the secreting organs of the skin, and to all its protoplasmic formations.

THE MEDULLATED NERVE-FIBRES of the skin have been carefully studied by Dr. A. R. Robinson,¹ of New York. According to the latter, one or several loops of such fibres pass upward into the papillæ, and then turn backward to the subpapillary region. Some of these, after such reversion, again ascend to an adjacent papilla. Yet others are supplied to the Pacinian and tactile corpuscles.

THE PACINIAN CORPUSCLES, named from the anatomist Pacini, also called CORPUSCLES OF VATER, exist subcutaneously only upon nerves intended for cutaneous supply, and are small, oval bodies, two or more millimetres in diameter. Each consists of a series of concentric, nucleated, and vascular capsules, arranged after the manner of the capsules of the onion, more closely united at the periphery

FIG. 8.



Pacinian body, after silver staining, showing superimposed endothelial layers. (After RENAUT.)

Section of Pacinian body, from a duck's bill. *g.L.*, lamellar envelope; *g.h.*, hyaline zone of the lamellar envelope; *bt*, terminal bulb of the nerve; *n.g.p.*, layer investing the cavity of the body. (After RENAUT.)

than at the centre, and surrounding a protoplasmic core. The medullated nerve to which the body is attached gradually loses its myeline envelope, and terminates in the centre of this core, after traversing the greater part of its axis, in one or several, minutely club-shaped, nervous filaments. The myeline sheath is lost in the tissue of the concentric capsules. According to Ranvier, the nerve may, after

¹ A Manual of Dermatology, by A. R. Robinson, M.B., etc. New York, 1884.

supplying one capsule, subsequently penetrate a second, or even a third. In such cases the nerve regains its sheath as it issues from the corpuscle at its opposite pole. Robinson believes that the nerve forms a plexus or loop within the corpuscle, and again leaves it at one of its poles.

The precise function of the Pacinian corpuscle is unknown. Its connection with the tactile sense is suggested by its location, since these bodies are most numerous in the subcutaneous tissue of the nipple, the penis, the digits, and parts similarly sensitive. It bears an evident analogy to the organ of vision, each body having a capsular character; each being provided with a special nerve-filament, which enters the corpuscle at one pole; each also receiving its impressions at the extremity of the capsule opposite that where it receives its nervous supply.

According to Krause, the Pacinian corpuscles are concerned in the appreciation of impressions produced by pressure and traction. Whether specially concerned in the distinguishing of sensations originating in heat, cold, moisture, pressure, traction, or weight, it is evident that they contribute but little, if at all, to the reception of ordinary impressions upon the skin, and, at this date, they are not known to play any part in cutaneous diseases.

THE TACTILE CORPUSCLES (Corpuscles of Meissner, or Wagner) (see Fig. 5) are other oval-shaped bodies found in about one of four of the papillæ in the pars papillaris of the corium. They are composed of from one to three capsules, each receiving a medullated nerve-fibre and made up of closely compressed, flat, connective-tissue fibres with minute nuclei, which are so packed together as to form a spindle-shaped mass, occupying the greater part of the papilla in which each is found. A somewhat denser connective-tissue capsule encloses each. The myeline sheath of the nerve-fibre is lost in the fibrous tissue of the corpuscle. Externally viewed, they seem to be transversely striated.

The axis-cylinder of the nerve-filament distributed to each divides into numerous delicate nervous threads which in part encircle the corpuscle and also penetrate within. According to Dr. Robinson, each corpuscle is provided with an afferent and efferent nerve, the former approaching the corpuscle from the subpapillary region and entering at or near its base. Occasionally the afferent fibre is furnished by an adjacent papilla. As the filament that enters the corpuscle frequently divides, two or more efferent fibres may then escape from it.

The discovery of nervous filaments in and among the epithelia of the epidermis in such abundance as to provide fully for tactile sensation in the skin, leaves the exact function of these corpuscles in partial obscurity. There can be little doubt, however, as to their association with the perception of certain qualities of foreign bodies with which the skin may be brought into contact.

Pigment.

The hue of the living integument is due in part to the degree of vascularity and distention of the vessels in the corium, and in part also to pigmentation of the epidermis. This pigmentation depends upon a distinct and uniform coloration of the epithelia, chiefly those found in the lower strata of the epidermis, and also to minute granules of pigment entangled in the reticulum of living matter in the same part. Extreme variation in the distribution of pigment is noticeable both in health and disease, and in individuals and races, being, at times certainly, proportioned to climatic and similar influences. This is well illustrated by the wide range between the flaxen-haired and pink-eyed albino, and the blackest specimens of the negro, each with small exception of African descent.

It has been already noted that in the colored races the pigment may stain the epithelial cells and their nuclei, as high as the granular layer; and that to this layer only the peculiar color of the skin of the white races is due. Pigment is not found normally either in the horny layer of the skin or in the subepithelial tissues. Waldeyer alone claims to have recognized it in normal connective tissue.

The relation existing between the two sources of skin coloration, viz., the blood and the pigment, is interesting and suggestive. The eye unaided, looking at the outer surface of the body, makes no distinction between these two color sources. It is indeed probable that the pigment originates from the coloring matters of the blood. It is certain that solar heat exerts a manifest influence upon both, and that in extravasations of blood into the substance of the skin, every shade of color which can be detected in the spectrum can be at times distinguished.

Muscles.

STRIATED MUSCULAR FIBRES extend from the subcutaneous tissue into the derma, and in the case of man are found chiefly upon the face and neck, where they are the analogues of more powerful skin-moving muscles possessed by several of the lower animals. Some, as those in the region of the face, serve to give expression to mental emotion by the production of movements in the features.

NON-STRIATED MUSCULAR FIBRES exist either as minute oblique fasciculi in connection with glands and follicles of the skin; or as annular bands, such as those which surround the nipple; or as radiating and more or less parallel rods, such as antagonize the orbicularis in the lids.

THE ARRECTORES, OR ERECTORES, PILORUM are muscles usually found in connection with the hair-follicles. They originate by several minute fasciculi from the papillary portion of the corium, and are inserted at several points into the outer layer of several adjacent

hair-follicles, just above the plane of the apex of the hair-papilla. Their general direction is oblique, and their muscle-bundles are both embraced and traversed by elastic fibres which form a dense network about them. Elastic threads also connect them intimately with the connective-tissue bundles of the corium, and serve as tendons at either extremity of each muscular fasciculus.

The oblique direction and mode of attachment of these muscles result in their inclusion of the sebaceous glands connected with the hair-follicles in the angle subtended by their muscular fibres. It follows, therefore, that by their contraction they can aid in the expulsion of the sebaceous secretion formed in the gland. But their intimate union with the elastic tissue, which is evenly and generally distributed throughout the framework of the corium, results in their discharge of a still more important function in connection with the regulation of the bodily temperature. Their anatomical connections are such that contraction of the *arrectores pilorum* serves to approximate several of the papillæ of the corium, the hair-papilla being in this view regarded as one of such cones. Thus, by their contraction the sebaceous secretion may be extruded, or, as more particularly exhibited in the lower animals, such hairs may be erected as the bristles of the boar. But by virtue of direct compression exerted upon the skin, the blood may be driven from the surface in a centripetal direction and its cooling to a great degree prevented, as in the well-known phenomena resulting in the production of the *cutis anserina* or "goose flesh." The reverse of this naturally follows when the muscles expand under the influence of external heat.

Hairs.

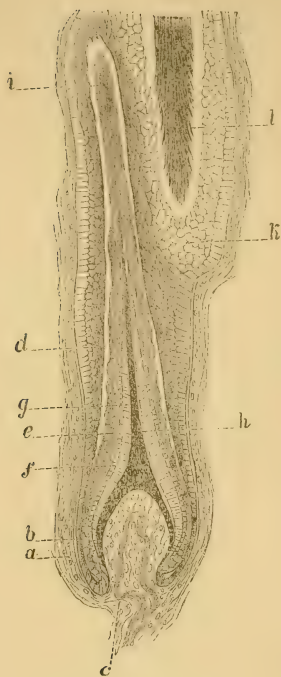
Hairs are cylindrical, elongated, and pointed epithelial filaments, derived from the epidermis, and obliquely implanted in depressions in the rete and corium, known as hair-sacs, or hair-follicles. They are found in all portions of the body except the palms and soles, the dorsum of the distal phalanges of the hands and feet, and the skin of the penis. Hairs occur in three tolerably distinct classes. There are the fine downy hairs, or lanugo, covering the face, trunk, and limbs; the long and soft hairs, such as are implanted upon the scalp, pubes, and axillæ; and the short hairs, including the soft varieties seen upon the brow, and the stiff hairs of the lids.

The hairs are first developed in the third month of foetal life, when a short epithelial cone is formed, whose base is gradually surrounded by connective-tissue cells, and finally indented from below by a rudimentary hair-papilla. Gradually the tip of the rudimentary hair perforates the primitive hair-cone, and becomes a mature filament.

At about the period of birth, sometimes earlier, occasionally later, the bed-hairs, as they are called by Unna, are replaced by papillary hairs. The term bed-hair is applied to primary hairs unprovided with papillæ, and implanted in shallow follicles from

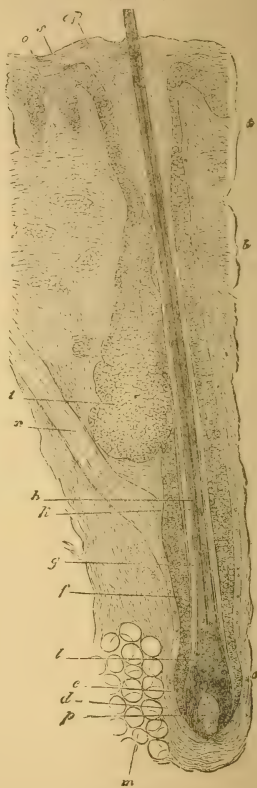
the sides of which productive epithelial offshoots have been sent out. Usually at the end of fetal life these bed-hairs have been

FIG. 9.



Section of hair-follicle during the formation of a new hair. *a*, external and middle root-sheaths; *b*, vitreous membrane; *c*, papilla, with vascular loop; *d*, external root-sheath; *e*, internal root-sheath; *f*, cuticle of hair-follicle; *g*, cuticle of hair; *h*, *i*, young hair; *l*, bulb of old hair; *k*, debris of external root-sheath of hair recently expelled. (After EBNER.)

FIG. 10.



Hair-follicle in longitudinal section. *a*, mouth of follicle; *b*, neck; *c*, bulb; *d*, *e*, dermic coat; *f*, outer root-sheath; *g*, inner root-sheath; *h*, hair; *k*, its medulla; *l*, hair-knob; *m*, adipose tissue; *n*, hair-muscle; *o*, papilla of skin; *p*, papilla of hair; *s*, rete mucosum, continuous with outer root-sheath; *ep*, horny layer; *l*, sebaceous gland.

for two months growing out of the hair-bed, or that part of the epithelium found in the central part of the hair-sac.

In studying the mature hairs, the parts to be considered are the hair-follicle, and the bulb, shaft, and point of the hair.

HAIR-FOLLICLE.—The hair-follicle is a sac-like depression in the corium, in which the hair-filament is implanted by its bulb, and there firmly secured. The direction or set of this follicle is always at an oblique angle with the plane of the cutaneous surface where it opens; and thus is determined the set of the hairs, which is always fixed, and at a similar angle. Viewed as a whole, the integument of the body over its entire area exhibits determinate whorls of both short and long hairs with definite centres, such as those which may be recognized at the vertex of the scalp, the centres of the lips, the umbilicus, etc. By this disposition the symmetrical appearance of the hairy parts is preserved, and, as a consequence of the same provision, physiological loss of the hair of the head is not productive of deformity, but rather adds dignity to the aspect of the elderly man.

The hair-follicle embraces the lower two-thirds of that portion of the hair which is embedded in the skin, together with the envelopes of the latter, termed its sheaths. Above the sebaceous glands the limits of the hair-follicle are lost in the papillary layer. It is constituted of the connective tissue of the corium in three layers: an external, longitudinal, fibrous layer; a middle, transverse layer; and an internal, homogeneous, or vitreous layer. At the base of the sac a fibrous pedicle may often be traced as low as the subcutaneous tissue.

If the hair-pouch were made artificially by thrusting into the skin from without inward a blunt-pointed pin, before which the tissue was gradually pushed, it is evident that the external layer, the stratum corneum, of the epidermis would be the first depressed, and finally cover the inner surface of the pouch. This represents the inner root-sheath of the hair. Next to this the pin would carry before it the mucous layer of the epidermis, which then would form the outer root-sheath of the hair. Outside of both would lie the connective tissue of the corium; this is the hair-follicle.

THE OUTER ROOT-SHEATH, or, as Unna prefers to call it, the prickle-layer of the hair-follicle, accompanies the involutions of the stratum corneum, and the stratum granulosum from without, into the funnel-shaped neck of the hair-pouch as far as the openings of the ducts of the sebaceous glands. There, abandoned by the two other layers of the epidermis, it is thinned in proportion as the papilla, which rises from below and which it closely surrounds, increases in size. It thus forms a hollow cylinder traversed by the hair and its envelopes, with a relatively wide, external, funnel-shaped opening, only partially filled by the shaft of the hair, and a narrower opening within, which embraces the neck of the hair-papilla.

THE INNER ROOT-SHEATH, or, as Unna prefers to call it, the matrix of the root-sheath, is externally in relation with the outer root-sheath or prickle-layer of the hair-follicle. The protoplasm of the cells of which it is constituted contains kerato-hyalin in varying

quantities, the amount being naturally greater in the cells lying nearest the hair-filament. The part of the sheath formerly termed Henle's layer is the more externally situated, cellular envelope of this internal root-sheath, most conspicuous in that part of the hair-

FIG. 11.



Lower portion of hair-pouch from the lip of a kitten. *F*, follicle; *T*, transverse sections of connective-tissue bundles of derma; *M*, arrector pili muscle; *IS*, inner root-sheath; *OS*, outer root-sheath; *P*, papilla; *C*, cuticle; *R*, root of hair; *H*, hyaline, or so-called structureless membrane. Magnified 500 diameters. (After HEITZMANN.)

sac which is above the level of the papilla. That part of the sheath formerly called Huxley's layer, is the more internally situated part of the same sheath, somewhat higher in the follicle. Both of these terms are now falling into desuetude as not actually descriptive of distinctly different structures, but only of one structure in different situations. That structure, whether it is termed the internal root-sheath, or matrix of the root-sheath, springs from the neck of the papilla, and rises as high as the neck of the follicle. It contains

kerato-hyalin, which is actively concerned in the cornification of the hair tissue.

Between this structure and the cells constituting the cortex of the hair, there is found, according to Unna, the common matrix of the cuticulæ, forming respectively the cuticle of the root-sheath, and the cuticle of the hair. The former is composed of cells with their long axes parallel to the circumference of the hair, while those forming the cuticle of the hair are arranged perpendicularly to the surface. These cuticulæ are securely locked together by projection of their cell edges, while united in the hair-follicle.

THE BULB, or ROOT, of the hair is that portion which is embedded in the skin, toward which the shaft of the hair gradually increases in thickness as it descends. It is embraced by the hair-follicle, though its root-sheaths are interposed, and implanted below at the base of the sac upon a nipple-shaped prolongation of the corium, which may be regarded as analogous to the vascular papillæ of the papillary layer of the corium.

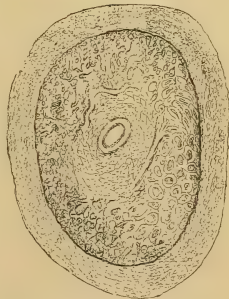
The bulb of the hair embraces the papilla, and is constituted of pigmented cells externally, forming what is called the cortex or cortical portion. This is the larger of the two structures of which the hair is composed, and its cells become vertically elongated and narrow as they are pushed outward in the process of growth.

The innermost structure of the hair is called its medulla, a tissue composed of non-pigmented, horizontally broadened cells containing kerato-hyalin. It rests directly upon the apex of the papilla below, and passes thence through the centre of the shaft of the hair like a delicate cylindrical core. Air-spaces occur between its epithelial cells as it rises toward the funnel-shaped opening of the hair-sac, but air does not enter the body of the individual cells.

THE SHAFT OF THE HAIR is that portion which extends from its exit at the surface of the skin to its extremity. The latter, when uncut, always tapers to a perfectly acuminate point, as is illustrated in the uncut hairs of the lids, and of the lower animals. The shaft is either straight, curled, wavy, or alternately varied in diameter, producing the peculiar character of the growth seen upon the scalp of the negro, these variations being due to the different degrees of flattening of the shaft in a transverse direction.

The color of the hair is dependent upon the pigment it contains, the proper color of the hair-cells, and the quantity of air contained

FIG. 12.



Transverse section of hair and follicle.

in the medulla. Variation in these three factors produces the wide range between a snowy whiteness and an ebony black.

The membrane which invests the shaft of the hair is the cuticle, already described, composed of numerous flattened plates, regularly overlaid so as to resemble fish-scales when viewed under the microscope on the flat side, and the overlapping shingles of the roof of a house when seen on the edge.

THE CORTICAL, or main, SUBSTANCE OF THE SHAFT of the hair is here also enwrapped by the cuticle, and composed of flat, nucleated, fusiform, epidermal cells. The strength, elasticity, and extensibility of the hair are chiefly due to the cortical substance, and in particular to the firmness with which these epidermal cells are attached to each other.

THE MEDULLARY SUBSTANCE OF THE SHAFT of the hair is found best developed in the short and strong hairs of the beard and eyelashes, being wanting in the lanugo hairs. It consists of a loosely packed mass of epidermal elements, differing in shape, developed in the centre of the axis of the shaft. This part of the hair contains also the pigment and fatty matters which are here arranged as in the rete of the epidermis. Seen under the microscope, the medulla appears as a continuous or interrupted longitudinal band, extending from the bulb, or the part implanted in the follicle, to the extremity or point. The purpose of this difference in the constitution of the cortex and medulla of the hair is doubtless to insure, on well-known mechanical principles, a maximum of strength, extensibility, and elasticity, with a minimum of volume.

The coloring matter of the hair is stored in both its horny and medullary portions, and is distinct both within and between the epithelial elements of which it is composed. This pigmentation corresponds, as Heitzmann has shown, in great part to the amount of pigment distributed to other parts of the integument, and sustains a close relation to the general nutrition of the body. Its subjection to the influence of the trophic nerves is well demonstrated by the phenomena of rapid blanching of the hairs. Excessive sweating, whether physiological or induced by the action of pilocarpine, has also a distinct influence upon the shade of color of the hair.

On transverse section hairs present an ovoid or ellipsoidal outline, occasionally suggesting an irregularly compressed circle. The degree of this flattening differs in different races, and, as has been shown, is the cause of variability with respect to straightness or curliness. As hairs are to a marked degree hygroscopic, and not only absorb but can be deprived of a portion of their water, these states of waviness are subject to variation according to the aqueous condition of the media by which an individual is surrounded.

Hairs differ from nails not only in their anatomical features, but particularly as to their physiological reproduction. The former are periodically cast off and replaced by new filaments; the latter are so

shed and reformed only in disease, and in health enjoy a continuous growth during the life of the body.

When a hair is about to be shed it separates from its papilla in the hair-follicle and rises in the latter till it reaches above the level of the papillary apex. It is thus for a time held in place with sufficient firmness by the prickle-layer only, and thus forms the bed-hair described above. Later an epithelial bud is projected either into the vacant follicle below or into the corium on either side, from which a new hair is formed, somewhat as the hair is formed in the primitive cone of foetal life. Later the growth outward of the new papillary hair pushes the bed-hair from its connection with the prickle-layer, and the latter is shed.

Sebaceous Glands.

The sebaceous glands are pyriform bodies, usually racemose in development, situated in the corium, never in the subcutaneous tissue, which furnish a more or less consistent and fatty secretion destined to anoint the skin and hairs. They can be usefully distinguished as in three separate classes, though only two of these classes include glands which are in the embryo associated with hairs.

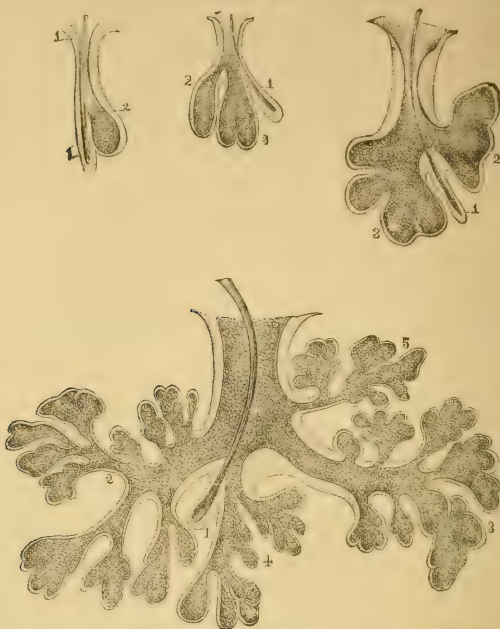
The first class, as proposed by Sappey, includes the sebaceous glands, which are, strictly speaking, appendages of the hairs and hair-follicles. They are developed early in foetal life from minute, lateral, bud-like prolongations from the outer root-sheath of the hair. From two to six of these spring from the prickle-layer of the hair-follicle; and the prickle-cells in the axis of each bud speedily undergo fatty metamorphosis. In the mature gland each acinus is formed of a membrana propria, on which are ranged layers of nucleated cuboidal epithelia undergoing fatty metamorphosis. Gradually the fatty cells are pushed outward toward the duct of the gland, where, sooner or later, their rupture releases numerous drops of fat just where the hair emerges from the closely applied follicle below to the funnel-shaped mouth of the hair-pouch above. Externally, each gland is provided with a layer of connective tissue. On account of the clearly defined relations of these bodies, Unna would call them the "glands of the hair-follicles." They are found in connection with the long and soft hairs, as of the scalp and axillæ, several grouped around a single hair-sac.

The second class includes the large and complex glandular structures to which the lanugo, or rudimentary hairs, seem accessory, the orifice of their ducts opening directly upon the cutaneous surface. These are chiefly found upon the so-called non-hairy portions of the skin, as the face in both sexes, and portions of the trunk and extremities.

The third class includes much the smaller number. These are sebaceous glands opening directly upon the surface and unconnected with hairs or hair-follicles. Such are the glandulæ odoriferæ of the male and female genitalia (glands of Tyson), the Meibomian glands,

and those existing about the lips and in the areola of the nipple. These might be designated as the "glands of the mucous orifices."

FIG. 13.



Sebaceous glands of the second class from the ala of the nose. (After SAPPEY.)

The sebaceous secretion is found to contain, chemically, water, palmitic and oleic acids, palmitin and olein, soaps, and the saline constituents of the other organic animal compounds, chlorides and phosphates of the alkalies and earths. It has been already shown that the extrusion of the secreted sebum from the ducts of these glands is greatly favored by the action of the arrectores pilorum muscles, by whose contractions the gland is to a degree compressed. This is the reverse of what occurs in the coil-glands, whose secretion is impeded by the action of these same muscles.

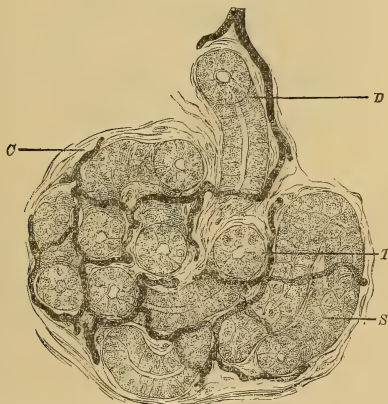
Coil-glands.

THE COIL-GLANDS, also termed SWEAT, or SUDORIPAROUS glands, are globular coils situated in the subcutaneous tissues and in the deeper portions of the corium. They appear first in the fifth

month of foetal life as buds projected downward from the prickly-layer of the epidermis. Unna has demonstrated that these projections always form between the papillæ of the corium, and spring from the prolongations of the rete between these papillæ. Long, thin cones of epithelium thus gradually traverse the corium, and become slightly bulbous at the lower extremity to form later the coil. The lumen, when formed, extends rapidly to the epidermis, and after this is reached, an opening is made from within outward, which becomes the sweat-pore.

These glands after birth are found in all parts of the body, but in certain regions, such as the axillæ, the groins, the palms, the soles, and about the anus, they are either numerous, of unusual size, or peculiarly arranged. They are specially numerous in the palms and soles, where, according to Krause, there are between two and three thousand to the square inch.

FIG. 14.

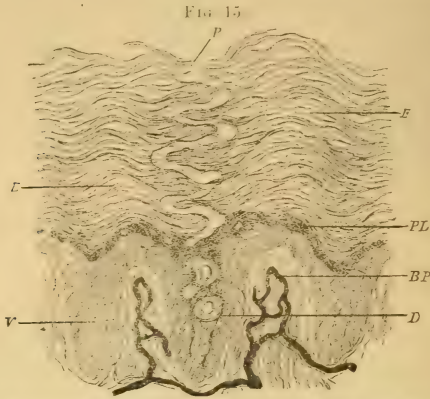


Coil of the sweat-gland. *S*, tubule lined by cuboidal epithelia; *T*, central calibre of the tubule; *D*, beginning of the duct; *C*, connective tissue with injected bloodvessels. Magnified 500 diameters. (After HEITZMANN.)

The coil is a convoluted tube terminating in a cœcal pouch, lined with cubical epithelia of granular appearance which are the secretory cells of the gland. Outside of these are muscular fibres running parallel with, or in a spiral direction about the coil. Surrounding both muscle-bundles and epithelium is a connective-tissue membrane. The glomerulus, or coil, is globular in outline and reddish-yellow in color. In the larger glands irregular dilatations and constrictions of the tube are conspicuous.

The excretory duct of the coil-gland passes from the glomerulus below to the epidermis above, in a straight or spiral course. It is

lined with a delicate hyaline cuticle discovered by Heynold, beneath which is a double layer of cuboidal epithelium. Externally is a membrana propria, unprovided with muscular fibres. Its outermost sheath is the usual connective-tissue layer. When the duct reaches the border-line of the epidermis, its inner cuticle and external connective-tissue sheath are both lost. Here it becomes the sweat-pore.



The sweat-pore traversing the epithelial layers of the skin. *BP*, papilla with injected blood-vessels; *V*, valley between two papillae; *D*, duct in the rete mucosum; *E*, *E*, epidermal layer; *PL*, coarsely granular epithelia, deeply stained with carmine; *P*, duct with corkscrew windings in the epidermal layer. Magnified 200 diameters. (After HEITZMANN.)

THE SWEAT-PORE is a continuation of the excretory duct of the coil-gland after the loss of its cuticle and connective-tissue sheath. It is the loss of these sheaths and the consequent intimate relation of the canal to the epithelia of the epidermis that furnish the special basis for this distinction. The sweat-pore is merely a wall-less canal or channel, spirally directed or running a straight course from the duct of the coil-gland below to the outermost stratum of the epidermis above. It has no other wall than that formed by the cells of the prickly-layer below and of the other layers of the epidermis, which successively surround this canal, narrow below and funnel-shaped above. Hence the lumen of the sweat-pore, if such a term be permissible, is in free communication with the juice-spaces of the epidermis.

The secretion of the coil-glands consists largely of globules of fat and granules of pigment. Their function, therefore, is plainly the lubrication of the skin with unguent, a task performed only in small part by the sebaceous glands, and by them chiefly for the pilary covering of the body. The palms of the hands and the soles of the feet, where no sebaceous glands exist, are thus lubricated with fat by the coil-glands.

The total number of the coil-glands in the body is estimated to be between two and three millions, and the total length of the uncoiled glands about eight miles. These figures serve to give an approximate idea of their very great physiological importance, and of the extent to which violation of the rules of hygiene possesses interest from the pathological point of view.

The function of the sweat-pores, which communicate directly with the excretory duct of the coil-glands, is distinct from that of the coil-glands, since it provides for the transmission outward of the watery fluids of the skin. The channel described as the sweat-pore is in ample and free communication with the intercellular spaces of the epidermis; and this anatomical peculiarity provides fully for all the needs of evaporation at the surface of the body.

The sweat excreted by the body differs under varying conditions of temperature, humidity of the air, and the amount and character of the articles ingested by the individual, either as food, drink, or medicament. Nearly ninety-eight per cent. of the secretion is pure water, the remaining proportions representing the saline constituents of the other fluids furnished by the animal in life. In all chemical analyses of the sweat, a source of error lies in the difficulty of securing the fluid secretion unmingled with that produced by the sebaceous glands; and the same, it may be said in passing, is true of the chemical analysis of the sebum. According to Duhring, the iodide of potassium, benzoic, succinic and tartaric acids may be excreted with the perspiration.

Unna, following in the line first indicated by Meissner, asserts that the coil-glands actually produce the subcutaneous fat-cushion; and the anatomical basis of such a statement is clear. The coil-glands and the fat-cushion appear at the same period of fetal life and develop in the same proportions. At birth the clusters of fat are most conspicuous where the coil-glands are most numerous. In the adult, the greater number of coil-glands are subcutaneous in situation and are closely surrounded by fat tissue; while those glands which do not descend below the corium, though not thus surrounded, are regularly met by columns of fat advancing toward them from below.

The credit of discovering and naming these fat columns belongs to Dr. J. Collins Warren, of Boston, whose studies were principally directed to the anatomy of the thick cutis vera.¹ The back and shoulders of a vigorous adult furnish an integument much thicker than the hide of many pachydermatous animals. The papillæ are imperfectly formed, and represented by an undulating line. The follicles of the lanugo hairs penetrate only the superficial layers of the cutis. From the bases of the hair-follicles, nearly vertical clefts, or slender, columnar-shaped spaces, extend obliquely to the panniculus adiposus, which were fitly termed by Warren, "fat-columns or fat-canals," as they are entirely occupied by adipose tissue. (See Figs. 3 and 4.)

These columns are about four mm. in length, and are slightly

¹ Satterthwaite's Manual of Histology, p. 420. New York, 1881.

wider than the hair-follicles above. Their long axes form a slight angle with that of the follicle, but they are nearly parallel to that of the erector pili muscle. Two horizontal prolongations are given off on either side of the middle of this axis, partly fat-filled. Near this point Dr. Warren called attention to "the coil of a sweat-gland, held in place by a few delicate fibres." The duct of the gland runs to the top of this space, whence it may be traced to the side of the hair-follicle. The connective-tissue fibres seem to terminate abruptly at the edges of these columns. The cleft slightly widens below, and on the side toward which its axis leans the fibres of connective tissue form a bundle penetrating below to the subcutaneous fat. The erector pili muscle is inserted partly into the base of the follicle and partly into the apex of the fat-canal.

These columns correspond in number to the hairs. The blood-vessels which they contain, springing from the subcutaneous plexus, bifurcate at the lateral clefts.

The later studies of Unna demonstrate very clearly that the fat-columns, first recognized by Warren, invariably advance toward the coil-glands, the latter either singly or in groups; and that the connection of the fat-columns with the hair-follicles is a mere incident of that advance.

The alternation of muscular fibres with the secretory cells of the duct of the coil-gland is a provision for the extrusion of the gland-secretion onward. The same anatomical arrangement permits free communication between the epithelia and the lymph-spaces which reach into the connective-tissue sheath of the gland. As a result, the lymph flows freely among the secreting elements of the gland and its duct. This lymph, loaded with fat, streams away from the coils, and before it reaches the lymphatic trunks its fat-globules are filtered away in the subcutaneous tissue. Such is the interpretation of this relationship by an author whose studies of the mutual interdependence of the several component parts of the integument have furnished the most interesting and fruitful results.

The Odorous Emanations from the Skin.

The skin of the human body in health is the constant source of odorous emanations, which, in pathological conditions, may be greatly increased or otherwise changed. The nature and exact sources of these emanations are as yet imperfectly understood. Were these exclusively of a volatile, gaseous, or vaporous composition, even though such fluids were capable of condensation upon external bodies, this could scarcely explain the well-known fact that some of the lower animals are capable of tracing the track of the human being for miles over a wind-swept path, till the soil pressed by the foot is covered with water. There is strong reason to believe that these emanations are the sole sources by which some contagious and infective diseases are communicated from one individual to another, a fact which suggests that these emanations may at times contain living matter

derived from the protoplasmic masses of which the body is built up. These emanations are properly regarded as having their origin in the secreting system of the skin, but in what proportion the several secreting glands participate in the product is difficult to establish. The sweat at times, even to human nostrils, exhales a distinct odor, though, as before indicated, to what extent this is due to its admixture with the sebaceous material it is difficult to determine. Peculiarly fetid and disgusting odors occasionally originate in chemically altered sebum, where the influence of the sweat secretion must be, from the locality under examination, partly eliminated.

The Nails.

Nails are dense, elastic, and translucent concavo-convex plates, or shells of horny tissue, placed upon the dorsum of the terminal extremities of the distal phalanges of the fingers and toes. Each has a free border at the distal portion of the pulp of the digit, with sides and proximal borders let into distinct furrows of the skin. The convex surface of the nail is exposed, the concave regarding the phalanx, and being implanted upon the nail-bed beneath.

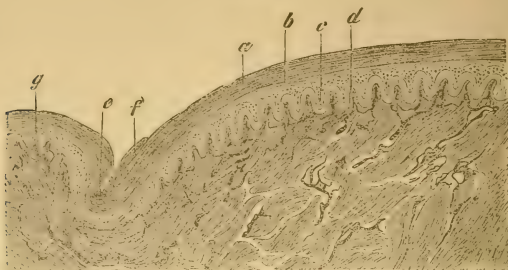
In the embryo the first change looking to the future formation of a nail consists in a peculiar smoothness and brilliancy of the epidermis covering the dorsum of the distal phalanges. Later, an epithelial ridge or line with a groove in front of it traverses the tip of the finger. Thus, three regions are defined: that behind the ridge, the nail-wall; that in the groove, the nail-bed; and that in front of the groove, the pulp of the last phalanx of the digit. A collection of large prickles-cells at the orifice of the nail-fold soon furnishes the first trace of the rudimentary nail. Mature nail-cells finally push forward between the prickle and horny layers of the nail-bed, which, by fan-shaped bundles of follicles, is firmly united to the periosteum of the phalanx. Lastly, a thin plate of horny material with a free edge, is visible externally in the fingers and toes of the newborn child.

In the adult, what is termed the matrix of the nail, is the tissue from which the horny plate springs. It is separated, as shown by Hans Hebra, into, first, a posterior part, filled with from three to six rows of papillæ. Next, in advance of this, is a lenticular space with curved borders, the anterior limit of which corresponds to the anterior border of the lunula. The area included in these two divisions is provided with papillæ grouped in symmetrically converging ridges, decreasing in size as they pass forward. This forms the matrix of the nail. Further forward, the nail-bed proper—in other words, the tissue that supports, rather than produces the horny plate—is composed of higher ridges of papillæ whose grooves and summits are covered with prickles-cells, and whose height is uniformly maintained as they stretch forward toward the pulp of the finger.

Attention has been already called to the fact that the digital arteries communicate directly with venous spaces and veins in the nail-bed, an anatomical peculiarity demonstrated by Hoyer. This arrangement

evidently provides for the safety of these slender and exposed organs in conditions arresting temporarily either the venous or the arterial current.

FIG. 16.



Vertical section of one-half of nail and matrix. *a*, nail substance; *b*, horny layer; *c*, mucous layer; *d*, papilla of corium; *e*, nail furrow destitute of papillæ; *f*, horny layer of the ungual furrow rising above the nail; *g*, papillæ of skin of dorsal surface of the finger.

THE NAIL, or, as it is termed by Unna, the true nail or nail-plate, originates only from the floor of the nail-fold as far forward as the anterior edge of the lunula. As to its formation, it may, therefore, be imagined as springing from its matrix vertically in the form of an involuted, shield-shaped plate, its convexity regarding the proximal phalanx. It may then be viewed as pressed downward over its nail-bed in front, with partially unfolded edges enwrapped by the epidermis of the sides, the narrowed point of the shield, elongated when untrimmed, projecting at some distance beyond the tip of the finger.

With this conception, it is easy to understand that the nail is constituted of horny filaments, or coherent strata of cornified cells, passing from the matrix or floor of the nail-fold. The upper surface of the nail grows, therefore, from the bottom of the nail-fold; the under surface from the lunula; and the intermediate layers proportionately from the parts between. It is firmly attached to the nail-bed by ridges upon its under surface, which interlock with corresponding grooves on the upper face of the bed.

THE NAIL-FOLD, crescentic in shape, clasps the nail posteriorly and at the sides. It is formed of connective tissue, whose bundles are interpenetrated by numerous coil-glands and fat-columns. The epidermis beneath the nail exhibits prickles, granular, and horny layers. As the nail is gradually liberated from its bed, both at the sides and point, the cornification of the horny layer becomes more complete, so that finally, as the nail-plate is pushed forward, it no longer rides over the cells of the rete, but over a completely cornified tissue.

If the pulp of any nail-bearing phalanx be pressed with moderate force against any firm object, the naked eye can detect upon the surface of the nail, just behind its free border, a whitish and yellowish band, convex anteriorly and somewhat increasing in width laterally.

This line, described by Unna, is also visible when no pressure is exerted upon the digit, its width varying under the conditions described. This border represents the space in which the three layers of the epidermis from the skin of the point of the finger, viz., the horny, the granular, and the prickly-layer, successively come in contact with the under surface of the nail.

FIG. 17.



Implantation of the nail at its border. *P*, papillæ decreasing in size toward the middle line; *R*, rete mucosum, which broadens toward the border of the nail, and forms irregular prolongations; *R'*, *E*, epidermal layer; *N*, plate of the nail. Magnified 500 diameters. (After HEITZMANN.)

The lunula is the relatively light-colored space extending from the middle part of the nail-fold posteriorly to its well-defined convex border in front. After artificial removal of the nail-fold, it is seen to extend to the posterior and enclosed border of the nail-plate. It, therefore, represents that part of the matrix of the nail which is not concealed by the nail-fold. Its color is not due to absence of vascularity, but solely to opacity of the keratogenous cells (Ranvier) which are concerned in the production of the horny threads that form the nail.

II.

GENERAL SYMPTOMATOLOGY.

IN cutaneous, as in other diseases, the clinical signs or symptoms of the morbid process are those by which it is recognized alike by the patient and the physician. It is usual to divide these into subjective and objective: the former, those appreciated by the patient alone in consequence of his sensations; the latter, by the eye and the touch of another who undertakes the investigation of the disease. It should be remembered, however—and this is a matter of some importance in this connection—that many objective signs are made manifest to the eye and touch of the patient himself, and liable to be interpreted or misinterpreted by him, with consequences which should not be ignored.

SUBJECTIVE SYMPTOMS.—The purely subjective symptoms of a disease of the skin are those manifested to the patient by sensations other than those connected with vision and his own sense of touch. They include sensations of itching, smarting, tingling, pricking, and burning; sensations as of increased or diminished susceptibility to the contact of foreign bodies; of increased or diminished temperature; pain in various grades of severity; and disordered sensations, as of the crawling of insects over the part, currents of hot or cold vapors or liquids, and compression of portions of the skin by either cords, bands, or closely fitting plates. The character of the subjective sensations experienced by a patient often proves an aid to the physician in recognizing the nature, not merely of a present disease, but of one also which has preceded. Thus the sensation produced by an attack of erysipelas is rarely an itching, while the latter is highly characteristic of eczema and scabies; the pain of zoster and the tingling of urticaria being distinctly different, not only from each other, but from the subjective symptoms named above.

OBJECTIVE SYMPTOMS.—The study of the objective symptoms of a cutaneous disease is of paramount importance. In no respect does the skilled physician so distinguish himself from one who is inexpert as in the recognition of the typical or atypical objective characters presented in diseases of the skin. The study is one which can be neglected safely by no diagnostician, and its rewards are precious in every department of medical science. These symptoms are spread before the eye, and their legibility increases with every hour of careful attention.

These signs of skin disease—or, more literally, skin injury—are called lesions, and it is usual to classify them as primary and second-

ary. Such a division is, however, open to criticism, since, viewed from the standpoint of time merely, some of the so-called primary lesions of the skin become in turn secondary and even tertiary. Thus a papule which might at one moment be called primary, may be transformed wholly or in part into a vesicle, which thus becomes a secondary lesion; and such vesicle again, in the evolution of a disease, may become a tertiary pustule. The latter finally may result in a quaternary crust. In the following pages these symptoms of skin disease will be distinguished as elementary and consecutive.

Elementary Lesions.

In describing the average size of cutaneous lesions, it is less convenient to state their measurement in fractions of a line or millimetre than to convey an approximate idea by a comparison with familiar objects of relatively fixed dimensions. The objects usually selected for this purpose are, beginning with the smallest, the seeds of poppy, mustard, and rape; the coffee-bean; the pea; the bean; the cherry; the finger-nail; the chestnut; the horse-chestnut; the egg of the hen and of the goose; and the orange. To these may also be added the point and the head of a pin. The student will find it useful to familiarize himself with the size of the small seeds mentioned, that their names may at once suggest to him the relative size of the lesions to which they are compared.

MACULÆ, SPOTS, OR STAINS, ARE GENERALLY CIRCUMSCRIBED ALTERATIONS IN THE COLOR OF THE INTEGUMENT, DIFFERING AS TO THE SIZE, SHAPE, HUE, AND DURATION OF THE DYSCROMIA, AND UNACCOMPANIED BY ELEVATION OR DEPRESSION OF THE SURFACE.

Examples of maculæ are to be found in the exanthematous rashes (measles); in localized hyperæmiæ of the capillary plexus of the corium, disappearing in various degrees according to the pressure exerted on the part (rosacea); in visible acquired development of bloodvessels in the skin (telangiectasis); in congenital vascularization of the surface (nævi); in variously colored blood extravasations and stases (purpura); in stains produced by contact with dyes (hand-workers in aniline); and in pigmentary changes such as those produced by solar heat (freckles), or by leprosy.

Extensive non-circumscribed changes in the skin color are seen in the course of several general disturbances of the economy, as in yellow fever, cancer, chlorosis, albinism, Addison's disease, argyria, and icterus.

Spots of various color and device are also produced by the intentional or accidental introduction of pigmented particles beneath the epidermis, as by the process of tattooing, the explosion of gunpowder, etc.

Maculæ exhibit a wide variation in color from a rosy pink to a chocolate-brown or even a black. This difference has suggested the employment of such descriptive terms as roseola, erythema, and pur-

pura, which have, unfortunately, served to distinguish both features of diseases and diseases themselves.

A macula which encircles another lesion, as, for example, the halo around the vaccine vesicle, is called an areola. Linear hemorrhagic streaks are called vibices; punctate and larger extravasations of blood are termed petechiæ and ecchymoses.

PAPULÆ, OR PAPULES, ARE SOLID OR COMPRESSIBLE, EPHEMERAL OR PERSISTENT, CIRCUMSCRIBED PROJECTIONS FROM THE SURFACE OF THE SKIN, VARYING IN SIZE FROM A POPPY-SEED TO A COFFEE-BEAN.

These exceedingly common skin symptoms vary greatly in their shape, color, location, career, and significance. Thus they may be flattened at the apex, acuminate or pointed, conical, rounded, or depressed at the summit to form an umbilication. They may be pale, rosy, dark or lurid-red, purplish, or even blackish. They may develop in transitory or persistent processes; they may be transformed into lesions containing fluids; may desiccate and furnish scales either at apex or base; may degenerate into ulcers; or enlarge into tubercles or tumors. They may be scratched, torn, or rubbed so as to lose their typical appearance; they may come and go; be sensitive to sudden changes in the blood-current, and yet be themselves persistent.

The mixed forms described above are generally named vesico-papular or papulo-vesicular, papulo-squamous, papulo-pustular, lesions, etc.

Lesions which simulate the papule and which, though described under that title, really belong to another category, are the small, semi-solid elevations of the surface which form at the orifices of the ducts of the cutaneous glands and follicles. Thus they may consist of little heaps of epidermis about the hair-follicles (lichen pilaris, keratosis pilaris), or of inspissated sebum collected in one or all of the acini of the sebaceous glands (milia, comedo).

The concomitants of an eruption of papular type also vary. Thus there may be a febrile process, or extensive infiltration of the skin about and beneath the papules (prurigo); or itching of the most intolerable character (eczema papulosum); or production of trifling sensations of annoyance, as a slight burning without other subjective symptoms (acne, lichen planus).

Papules which are transformed into moist lesions become covered with a crust. Papules which are scratched or torn by the finger-nails usually betray the fact in the minute and flat blood-scales dried upon their surface. Papules which ulcerate may be followed by scars. Papules which have undergone the process of involution may be followed by macular sequelæ.

POMPHI, URTICÆ, OR WHEELS, ARE MORE OR LESS TRANSITORY, ROSY-RED AND WHITISH, IRREGULARLY SHAPED AND SIZED ELEVATIONS OF THE SURFACE OF THE SKIN, PRODUCED BY BLOOD-STASIS IN SPASM OF THE VESSELS, ACCOMPANIED BY A TINGLING OR

PRICKING SENSATION AND CHARACTERIZED BY RAPIDITY OF EVOLUTION AND FREQUENCY OF RECURRENCE.

The typical wheal is seen in the disease known as nettle-rash (*urticaria*), where closely packed, shining, roundish and whitish, pea-to finger-nail-sized elevations of the skin are visible, surrounded by a slightly rosy border. They are firm to the touch, and arranged in patches, circles, bands, gyrations or striations, often disappearing in a brief time and recurring with or without a renewal of the cause. They are occasioned by a rapid exudation of serum into the rete or *pars papillaris* of the corium. This is supposed to be due to clonic vascular spasm, producing irregularities in the lumen of the skin capillaries, under the influence of the vaso-motor nerves which supply a small area of the superior *pars vascularis* of the derma. The sensations produced by the wheal are particularly stinging, burning, pricking, and itching. They are often surrounded by an areola.

"Giant" wheals are such as enlarge to the dimensions of an egg or a tomato, or cover extensive areas of integument, as, for example, the entire surface of the buttock or shoulder.

Relics of disappeared wheals are usually transitory erythematous maculæ, but in rare cases a more or less deep pigmentation is left, which slowly disappears (*urticaria pigmentosa*).

It should be borne in mind that at times the wheal-like condition is assumed by papulæ, as also by lesions resulting from such traumatism as the bites of insects, reptiles, horses, dogs, etc.

TUBERCULA, OR TUBERCLES, ARE CIRCUMSCRIBED, SOLID, GENERALLY INCOMPRESSIBLE, AND PERSISTENT, NODOSITIES OF THE SKIN, VARYING IN SIZE FROM A COFFEE-BEAN TO A CHERRY.

They may be largely projected from the free surface of the integument, or be deeply seated in the skin, and but a small portion become evident to the view externally. Their varieties as to shape, color, size, and other features, correspond in great part to those described in connection with papules. They may be attached by a broad base to the skin, or be pedunculated, or even pendulous. Their seat is usually in the deeper portions of the corium or the subcutaneous connective tissue. Degenerating and ulcerating tubercles are followed, as might be supposed in view of their volume, by considerable destruction of tissue, and in cases of repair by correspondingly extensive cicatrices. Tubercles are seen in such diseases as fibroma, molluscum epitheliale, syphilis, leprosy, sarcoma, and cancer.

Tubercles are often described as merely enlarged papules; but the distinction between these two forms of lesion will be better recognized when attention is paid to the particular portion of the skin in which each takes its origin. Papules spring oftenest from the superficial layers of the derma; tubercles, on the other hand, from the deeper. This being remembered, it will be clear that at times a tubercle may project from the surface to a less extent than a papule, though its larger volume is evident as soon as the skin within which it has developed is handled.

PHYMATA, TUMORES, OR TUMORS, ARE MASSES OF SOLID TISSUE, OR OF SOLID TISSUE MORE OR LESS COMMINGLED WITH FLUIDS OF VARIABLE CONSISTENCY, DIFFERING IN SIZE, SHAPE, COLOR, AND IN THE BENIGNITY OR MALIGNITY OF THEIR CAREER, EITHER LOCATED WITHIN OR BENEATH THE SKIN, OR, BEING ATTACHED TO THE LATTER, PROJECTING FROM IT TO A VARIABLE EXTENT.

The mere fact that a lesion of the skin approaches in dimensions the size of a tumor is in itself an element of gravity. Tumors may originate in mere hyperplasia of the living matter; may consist of new formations of greater or less danger to the vicinage, or the general economy; may be formed of blood or lymphatic vessels, or both in the same lesion; may embody large fluid-containing cysts; may be built up of nervous tissue, fat, bundles of connective-tissue fibres, glandular elements, and indeed of any of the elements which exist physiologically in the human integument.

Examples of tumors are seen in fibroma, sarcoma, carcinoma, and rhinoscleroma.

VESICULÆ, OR VESICLES, ARE ELEVATIONS OF THE HORNY LAYER OF THE EPIDERMIS WITH LIMPID, LACTESCENT, OR SANGUINOLENT FLUID CONTENTS, VARYING IN SIZE FROM A POPPY-SEED TO A COFFEE-BEAN.

Typical vesicles are seen in the minute and transitory lesions occurring in the vesicular form of eczema. They are usually filled with a clear serum. Variations from this type are, however, common. Thus, they may be flattened, acuminate, roundish, umbilicated, or conical; may be fully distended or partially collapsed upon their contents; may have a short or long duration; may be distended with milky, chylous, or a blood-stained fluid; may be opalescent, yellowish, reddish, or blackish in color; several may coalesce to form a many-chambered lesion; and a single one or several such may undergo transformation into pustules or bullæ. Vesicles may terminate by accidental or spontaneous rupture, their contents freely flowing forth upon the surface of the peripheral integument; or they may desiccate to a crust; or may even terminate by one of the ulcerative processes. They may or may not be accompanied by pruritus. Minute vesicles, which are merely the external apices of large-chambered accumulations of fluid beneath, occasionally form upon the surface of the skin.

Such are seen in the course of lymphangiectasis.

PUSTULÆ, OR PUSTULES, ARE CIRCUMSCRIBED CUTANEOUS ABCESES, COVERED WITH AN EPIDERMAL ROOF-WALL, AND VARYING IN SIZE FROM A MILLET-SEED TO A FILBERT.

The typical pustule contains pus, and is colored yellowish, yellowish-green, or brownish-green, according to the admixture of its contents with blood. The pus being an inflammatory product, it necessarily indicates the occurrence, at the base of the pustule, of an

inflammatory process. Pustules, like vesicles, may be roundish, acuminate, globoid, conical, umbilicated, surrounded by an inflamed or normal integument; may be superficially or deeply seated; may terminate by rupture or desiccation; may or may not be followed by an ulcer and ultimate cicatrix. They may be seated either upon the free surface of the skin, or at an orifice of a follicle, in which case they represent an inflammation with purulent product in the duct or gland beneath.

Pustules may originate as such; or as a consequence of transformation of vesicles; or after a change in a papule, which may thus come to have a purulent apex. According to Auspitz, they invariably originate from vesicles. Pustules often result in the formation of crusts, the latter varying in color according as the pustules from which they originated contained a clear serum or blood.

Transitional forms between vesicles and pustules are termed vesicopustules. Pustules of a large size and resting upon an indurated, engorged, and elevated base are often called ecthymatous.

Pustules are seen in syphilis, variola, eczema, scabies, acne, and many other cutaneous diseases, including several forms of dermatitis medicamentosa.

BULLÆ, OR BLEBS, ARE SUPERFICIAL OR DEEP-SEATED ELEVATIONS OF THE SKIN HAVING FLUID CONTENTS, DIFFERING IN COLOR, SHAPE, AND CAREER, AND VARYING IN SIZE FROM A COFFEE-BEAN TO A GOOSE'S EGG.

Blebs have been described as large vesicles; but this fails to define exactly their pathological character. Like vesicles they may contain serum, lymph, blood, or pus; and be variously colored in the degrees according to which their contents become visible through a semi-transparent roof-wall. They may be globoid, hemispherical, oval, crescentic, semi-crescentic, conical, and even exhibit angles. They may be seated upon an apparently unaltered or evidently morbid integument; and may or may not present a peripheral areola.

Bullæ may persist or rupture; may desiccate or degenerate into ulcers; may collapse after the escape of their contents, and the roof-wall become glued to the base from which it was originally raised.

Bullæ usually occur in extremely debilitated states of the system, and are, as a rule, of graver portent than other fluid-containing lesions of the skin. They occur in scalds and burns, in pemphigus, leprosy, erysipelas, syphilis, and moist gangrene.

Consecutive Lesions.

SQUAMÆ, OR SCALES, ARE ATTACHED OR EXFOLIATED EPITHELIAL LAMELLÆ, WHICH HAVE BECOME APPRECIABLE AT THE SURFACE AS THE RESULT OF SOME MORBID PROCESS IN THE SKIN.

A physiological desquamation is constantly in progress over the superficies of the body, whose evidences are not pronounced in skins properly cleansed by ablution. In disease processes, however, des-

quamation may occur as a distinct symptom in various forms. Thus the scales may be minute, fine, branny, dirty-white, or yellowish; they may be larger, pearly-white, shining; dry or fatty; aggregated so as to resemble flaky pie-crust; exfoliating in extensive sheets, as from the entire sole of the foot or palm of the hand; or in glove-finger-like sheaths, as from the surface of a digit. They may be scanty, scarcely perceptible, and so attached as to require force for their removal; they may fall spontaneously in a pulverulent shower, being so abundant as to fill the garments or bed-clothing of the patient.

Furfuraceous desquamation is that form in which fine bran-like scales are shed from the surface.

Scales occur in eczema, psoriasis, pityriasis, ichthyosis, syphilis, and in several of the parasitic diseases of the skin.

It should not be forgotten that scales are frequently intermingled with other lesions, often they succeed the latter. Thus a papule may scale at its apex, or surround its base with a collarette of loosened epidermal plates, beneath or between which a macular stain is visible. Again, they may develop from the macule, the tubercle, or the tumor. Though generally conceded to be evidences of a dry and non-discharging disease of the skin, they are at times accompanied or succeeded by moisture of the part affected.

The term "scales" is sometimes applied to the flattened plates of dried sebum which form on the scalp and portions of the trunk in seborrhœa sicca.

CRUSTÆ, OR CRUSTS, UPON THE SKIN, ARE RELICS OF THE DESICCATION OF ITS PATHOLOGICAL PRODUCTS.

Crusts never occur as primary symptoms of disease. When formed by the desiccation of serum only they are of a yellowish, straw-yellowish, or reddish-yellow hue; when composed largely of dried pus they are colored greenish, or greenish-yellow; and, when there has been an admixture of blood, they are usually brownish or blackish. At times they suggest in appearance gum, honey, or Venice turpentine; in shape they may have the form of the concavo-convex lid of a watch-case; in color and shape they may resemble the half-shell of the oyster, or the carapace of a small turtle. They may be delicate and thin; bulky and thick; friable or mealy; may be firmly attached to the subjacent tissues, or readily separable; may cover a sound, though tender and reddened epidermis; may conceal a superficial, or deep, foul-based ulcer, by whose secretions from beneath they are raised above the plane of the skin and increased in thickness. They may be circumscribed and no larger than a small finger-nail; may envelop an entire limb or organ, as the leg or the penis; or, finally, may be so irregularly disposed among other lesions, papules, pustules, excoriations, and open ulcers, that it is difficult to define their outline, and even to recognize their identity. Crusts formed of dried sebum are greasy to the touch, dirty-yellowish in shade, and usually seated upon a non-infiltrated base. Crusts are common in eczema,

syphilis, leprosy, seborrhœa, and a large number of other diseases of the integument.

EXCORIATIONS ARE SUPERFICIAL SOLUTIONS OF CONTINUITY, USUALLY INVOLVING PORTIONS OF THE SKIN AFFECTED WITH PRURITUS, AND RESULTING FROM MECHANICAL VIOLENCE.

Excoriations, in appearance among the most trivial of skin lesions, possess a value from the diagnostic standpoint which can scarcely be overestimated. They occur as striated, linear, punctate, circular, or irregularly shaped, furrowed wounds, at times involving areas of flat surface, oozing with serum or blood, covered with dried blood or crusts, yellowish or reddish in hue, and for the most part both induced and accompanied by severe pruritus. They may coexist with hyperæmia and infiltration of the skin beneath, brought on by the irritative character of the continuous, or, more frequently, interrupted cause by which they were begotten.

Excoriations become significant according as they indicate scratching, tearing, or other species of wounding by the finger-nails, and rubbing portions of the integument with foreign bodies. In the former case they are significantly recognized in those portions of the body most accessible to the hands, though in the case of eczematous children and infants they may originate by the rubbing together of the knees; or the leg of one side by the feet and toes of the other. The loss of tissue may extend deeper than the rete—at times invading the papillæ of the corium, which bleed in consequence.

Excoriations may occur without the appearance of other lesions, as in the disease called pruritus; but where itching is severe and induced by a cutaneous exanthem, the lesions constituting the latter may be intermingled with, obscured, or even obliterated by excoriations and the pathological processes to which they give origin. Thus macules, vesicles, pustules, and papules may undergo change; and the recognition of the type of the existing disease be correspondingly difficult. Excoriations are common in skins wounded by lice, bed-bugs, and gnats; in the subjects of eczema, scabies, intertrigo, and prurigo; and in individuals with special sensitiveness of the integument to the action of a medicament employed either internally or externally.

RHAGADES, OR FISSURES, ARE LINEAR SOLUTIONS OF CONTINUITY, USUALLY OCCURRING IN PREVIOUSLY INFILTRATED PORTIONS OF THE SKIN.

They may extend to the derma, and even invade yet deeper structures; may be painful, or the reverse; dry, secretory, or incrustated; are often hemorrhagic, and usually formed with sharply cut walls. They are of frequent occurrence in the vicinity of the articulations, in which situations they are induced or aggravated by the joint-movement stretching or tearing tissues whose extensibility has been diminished by any morbid process. Fissures may terminate in ulceration. They vary as to length, curve, and tenderness. They are often exquisitely painful, and greatly complicate the skin disease

in which they occur. They may follow the curve traced by the boundaries of bodily organs near which they occur—as, for example, the line of the posterior junction of the ear with the head, or of the breast of a woman with the thoracic wall where it rests. Fissures occur in eczema, syphilis, dermatitis, and lichen ruber.

ULCERA, OR ULCERS, ARE LOSSES OF SUBSTANCE RESULTING FROM A PREVIOUS PATHOLOGICAL PROCESS INVOLVING THE CORIUM, AND, IN CASES, THE SUBCUTANEOUS TISSUE.

Cutaneous ulcers differ greatly in size, shape, color, edges, base, career, and, indeed, in all their characteristics. Every ulcer has an outline, base, floor, edges, and secretion. The outline may be circular, crescentic, reniform, ovoid, serpiginous, or with horseshoe-like contour. The base, or underlying tissue, may be soft, supple, indurated, or in a state of active inflammation, with consequent infiltration. The floor may be glazed, shallow, deep, excavated, cup- or funnel-shaped, “worm-eaten,” crateriform, sloughy, covered with a tenacious or readily removed secretion, granular, puriform, or hemorrhagic. The edges may be clean-cut, having a punched appearance, undermined, everted, ragged, regular, or contracting, with a whitish inner border of advancing cicatrization. The secretion may be scanty, limpid, puriform, profuse, ichorous, and odorless or exhaling an offensive stench. They may be so crust-covered as to be invisible, or so exposed and erosive in action as to render the affected surface in the highest degree unsightly. They may be acute or chronic, insensitive or productive of intense pain; may heal by cicatrization, remain open for a lifetime, or prove fatal by either destruction of parts essential to life, or by exhaustion of the vital forces.

CICATRICES, OR SCARS, ARE NEW FORMED SUBSTITUTES FOR LOST CONNECTIVE TISSUE.

Scars never succeed excoriations, fissures, or other solutions of continuity in the skin, which have not penetrated as far as the derma, and resulted in destruction of a portion of the elements of which the latter is built up. They possess the highest importance for the diagnostician, since they point invariably to a pathological process whose career is terminated, the characteristic features of which they frequently embody. They may be regarded as the special and persistent imprints upon the integument, of the serious disorders from which it has suffered.

To a certain extent, as already shown, scars retain traces of the special peculiarities of the lesions, and even of the diseases, which they succeed. The identification, however, of the individual predecessor in each instance is, in the present state of our knowledge, not always possible from a study of cicatrices alone. The extent of knowledge in this direction is, however, rapidly increasing; and in many cases the certainty thus acquired is of incalculable value to the diagnostician.

Scars are remarkable for their tendency to contraction and gradual

decoloration. They may be minute, punctate, extensive in area, attached to underlying tissues, depressed, raised above the plane of the peripheral skin, seamed with furrows, pliable and soft, indurated, traversed by ridges, knotted, and as irregular in contour as the ulcers already described. They may extend in digital, linear, or annular prolongations toward contiguous portions of the skin, and by subsequent contraction induce considerable distortion and deformity. Thus they may drag down an eyelid, and ectropion ensue; may glue the lobe of the ear to the cheek; may evert lip or nostril. When recent, they are usually reddish in tint; when older, be pigmented in centre or circumference; or, as is common, exhibit a gradual decoloration, centrifugal in its progress. They may be the seat of pain from an entrapped nerve-filament; may reopen to ulceration; or be accompanied by no subjective sensation. Not rarely they become the origin of the disease known as cicatricial keloid. Scars are unprovided with hairs, papillæ, or the orifices of sweat-pores and sebaceous gland ducts. As implied in the definition given above, scars may result from any disease or injury of the skin which involves loss of connective-tissue elements in the corium.

To these lesions Bazin adds, as elementary forms, the mucous patch of syphilis; the cuniculus, or furrow, produced in the skin by the *acarus scabiei*; and the sulphur-colored crusts of favus. These, however, are not general, but special features of individual disorders, and are best studied in connection with the latter.

The elementary lesions of the skin are termed by Auspitz, "anthe-mata;" groups of such lesions, "synanthemata;" and, as in accordance with common usage, generalized eruptions affecting the entire surface of the body, "exanthemata." The word "erythanthema" is used by this writer to describe groups composed of several of the elementary lesions of the skin, as, for example, of papules, vesicles, and pustules rising from a common, reddened, and hyperæmic base.

In addition to the names of the lesions of the skin just enumerated, certain peculiarities of cutaneous symptoms are described in qualifying terms, which here require definition. They relate chiefly to the color, shape, distribution, and method or period of evolution of lesions as they are observed in individual cases. The more important of these terms, as used by modern writers, are arranged below, alphabetically, with a brief explanation appended to each. A much larger list of obsolete adjectives, employed by older authors, is purposely omitted.

ABDOMINALIS. Located on the abdominal surface.

ACQUISITUS. Acquired.

ACUMINATUS. Having a pointed apex.

ACUTUS. Of acute course.

ADULTORUM. Occurring in adult years.

ÆSTIVALIS. Occurring in the season of summer.

AGGREGATUS. Collected in patches.

AGRIUS. Acute, or angry in appearance.

ALBIDUS. Of whitish color.

ANGIECTATICUS. Vascularized.

- ANNULARIS.** In the form of a ring.
ANNULATUS. In the form of a ring.
APYRETICUS. Unaccompanied by fever.
AREATUS. Occurring in areas.
ARTIFICIALIS. Producing artificially.
ASYMMETRICALIS. Of different distribution on the two lateral halves of the body.
AUTUMNALIS. Occurring in the fall of the year.
BRACHIALIS. Occurring on the surface of the arm.
CACHECTICORUM. Occurring in debilitated subjects.
CAPITIS. Occurring on the head, usually the scalp.
CAVERNOSUS. Large chambered.
CHRONICUS. Chronic in course.
CIRCINATUS. Of circular outline.
CIRCUMSCRIPTUS. Having a definite contour.
CONFERTUS. Arranged in close proximity, with coalescence of lesions.
CONFLUENS. Arranged in close proximity, with coalescence of lesions.
CONTAGIOSUS. Capable of communication by contagion.
CORPORIS. Occurring on the surface of the body; employed usually to designate an eruption upon the trunk, as distinguished from that on the head or extremities.
CRUSTOSUS. Crusted.
CRYSTALLINUS. Of crystalline appearance.
DIFFUSUS. Irregularly disposed.
DISCRETUS. Having isolated lesions.
DISSEMINATUS. Disseminate, without regularity of distribution.
ERUPTION. Is used of the totality of all patches and lesions upon the person of one individual.
ERYTHEMATOSUS. Having a reddish blush.
ESSENTIALIS. Idiopathic.
EXFOLIATIVUS. Having a tendency to exfoliation or shedding from the surface of the body.
EXULCERANS. Is employed by French writers to designate superficial ulcerations, or lesions with a tendency to such a process. By English and American authors it is sometimes used to designate unusually deep ulcerations.
FACIALIS. Located on the face, usually as distinguished from the scalp.
FAVOSA. Displaying crusts of favus.
FEBRILIS. Accompanied by a febrile process.
FEMORALIS. Occurring on the surface of the thigh.
FIBROSUS. Composed of fibrous tissue.
FIGURATUS. Having a figured appearance.
FLAVESCENS. Of yellowish hue.
FOLIACEUS. Resembling a leaf or leaves.
FOLLICULARIS. Concerning the cutaneous follicles.
FUNGOIDES. Resembling a fungus.
FURFURACEUS. Exhibiting numerous, fine, bran-like scales.
GUTTATUS. Of the size of a drop of water.
GYRATUS. Having a serpiginous or gyrate outline. This is usually the result of a coalescence of imperfect circles or semicircles.
HERPETIFORMIS. Vesicular or herpetic in type.
HIEMALIS. Occurring in the winter season.
HUMIDUS. Accompanied by moisture.
HYPERTROPHICUS. Characterized by hypertrophy.
HYSTRIX. Having lesions projected or erected like quills.
IMBRICATUS. With crusts or scales overlaid like tiles.
IMPETIGINODES. Pustular.
INFANTILIS. Occurring in infancy.
INTERTINCTUS. Distinguished by color.
IRIS. Occurring in more or less distinctly defined concentric rings.
LABIALIS. Occurring upon the surface of the lip.

- LENTICULARIS. Of the size of a small bean.
LIVIDUS. Deeply colored.
MACULOSUS. Discolored.
MADIDANS. Characterized by moisture.
MARGINATUS. Having a defined margin.
MEDICAMENTOSUS. Produced by external or (more commonly) internal medication.
MELANODES. Of blackish color.
MILIARIS. Of the size of a millet seed.
MITIS. Of mild, benignant type—the reverse of agrius.
MULTIFORMIS. Exhibiting simultaneously several types of elementary lesions.
NEONATORUM. Occurring in the newborn.
NEURITICUS. Having nervous association.
NIGRICANS. Of black or blackish color.
NODOSUS. With development of nodes or tuberosities of the surface.
NUMMULARIS. Of the size of small coins.
OLEOSUS. Accompanied by an oily secretion.
PALMARIS. Occurring on the palms.
PARASITARIUS. Produced by an animal or vegetable parasite.
PARASITICUS. Produced by an animal or vegetable parasite.
PATCH. The aggregation of several isolated or confluent lesions.
PHLEGMONOSUS. Accompanied by deep-seated inflammation.
PHLYCTÆNOIDES. Characterized by groups of small vesicles.
PIGMENTOSUS. Accompanied by pigmentation.
PILARIS. Related to the hair.
PLANTARIS. Situated on the soles of the feet.
PLANUS. Flat.
POLYMORPHOUS. This is the Greek equivalent of the Latin multiform.
PRÆPUTIALIS. Situated upon the prepuce.
PROGENITALIS. Situated on the exposed mucous surfaces of the genitalia.
PRURIGINOSUS. Accompanied by itching.
PUBIS. Located upon the skin or hairs of the pubes.
PUNCTATUS. Occurring in dots or points.
RHAGADIFORMIS. Fissured, or tending to produce fissures.
ROSACEUS. Having a rosy or pinkish hue.
RUBER. Red, usually dark red in color.
SCUTIFORMIS. Having the shape of a shield.
SEBACEUS. Concerning the sebaceous glands or their secretion.
SENILIS. Occuring in advanced years.
SERPIGINOSUS. Literally, creeping—advancing in irregular gyrations.
SICCUS. Dry, unaccompanied by moisture.
SOLITARIUS. Having an isolated lesion, or with isolated lesions.
SYMMETRICALIS. Similarly distributed on the two lateral halves of the body.
TOXICUS. Poisonous.
UNIFORMIS. Exhibiting lesions all of one type.
UNIVERSALIS. Affecting the entire surface of the body.
URTICATUS. Accompanied by wheals.
UTERINUS. With association of uterine disorder.
VARIEGATUS. Exhibiting several distinct colors.
VASCULOSUS. Accompanied by vascular development.
VERNALIS. Occurring chiefly in the spring of the year.
VERSICOLOR. Exhibiting several shades of the same color.
VULGARIS. Of the usual or commonly observed type.

III.

GENERAL ETIOLOGY.

THE study of the causes of diseases of the skin gives us a glimpse of the etiology of diseases in general. In the lowest representatives of life, the greatest dangers to existence originate in exposure to assault from other and stronger representatives in search of their prey, in other terms an external danger. In man, the highest representative of the animal scale, the perils of existence are complicated by his social necessities and his artificial methods. He can never, however, at any period of his existence, divest himself from the necessity of exposure to external peril. The plan of his organs and the play of his normal activities are perfect, even to the recovery from all but mortal injury and repair of moderate loss. The struggle for existence of the ideal man is intended to be with that which is without; his body meanwhile furnishing him with a comfortable tenement and a fair fortress. In the purview of nature there should be no internal revolt. When such occurs, it is usually the result of his ignorance, his folly, or his vice.

Viewed in this light, the causes of the diseases of his skin will be seen to differ but little from those which induce disease in his other organs. Exposed to cold, he suffers from a pneumonia; to injury, a fracture or a dislocation; to the contact of poisons, he vomits or purges; to contagion from his fellow-man, he has the cholera or plague; all these are capable of producing diseases of his skin. But meantime his organs have a tender care for themselves and each other, compared with which the solicitude of a mother for her child becomes insignificant. The stomach refuses to digest itself; the lung, unwounded, admits no air to the pleura; the bladder, so long as it is unruptured by violence, permits no drop of urine to pass into the peritoneal sac. In the same proportion, and under the same general law, do the viscera refuse to generate a poison which will injure the integument; and the fluids of the body, a vicious "humor" which will damage the bones.

Reasoning thus from analogy alone, it will be seen that the prevalent doctrines respecting blood-poisons of internal origin must be greatly restricted. Eczema alone, in its manifold forms, furnishes more than one-half of all the diseases of the skin; and yet every one of these several forms can be produced at will and artificially upon the integument of man.

Again, it is not to be forgotten that the body is really invested with a continuous skin which not only is extended over its outer surface, but is also reflected so as to line all passages by which it is traversed within. This inner investment, called the mucous meni-

brane, is as truly a part of the skin as the epidermis and corium of the face or hand. This is clear: first, as shown from the facts of evolution, because representative animals of the lower scale are found capable of complete inversion, by which the outer skin becomes the inner or digestive, and the inner, in turn, the outer or protective organ; second, as shown by histology, the anatomical characters of the skin and mucous membrane being similar; third, as shown by pathology, the extroverted mucous membrane rapidly undergoing the transformation which causes it to resemble the skin; while the inverted skin, as when the thighs are by disease kept in continuous contact and moistened, assumes the characteristic features of mucous membranes. In the study of cutaneous etiology, it is manifestly proper to regard as of external origin all causes which operate from without upon either the outer or the inner skin of the body.

This much premised, it can be said that the large proportion of all diseases of the integument originate either from the action of solar heat and light; temperature changes at the surface of the body; contact with various fluid and solid substances with the production of either frictional, traumatic, or toxic effects; or the development upon and within the skin, of vegetable parasites. It remains merely to consider these causes somewhat in detail, remembering that at times several influences coöperate in the production of a given effect.

The action of solar light upon the skin is usually coincident with the operation of another mode of motion called heat. To the former are to be attributed the production of freckles, "tan," and other pigmentations of the surface; to the latter, the erythema, eczema, and various grades of dermatitis which may follow exposure to the direct rays of the sun. Other temperature effects, including those produced by extremes of both heat and cold, are to be classed in the same category. According to Hebra, exposure of the skin to a temperature over 100° Fahrenheit, produces merely a transient erythema, which under a further elevation of 65° F. will not subside for several days. At a temperature of 212° F., all grades of acute dermatitis are awakened with the production of bullæ, up to the point where complete destruction of the integument occurs.

The influence of the seasons is of the same general character. Some cutaneous diseases are worse in summer; others in winter. Prickly heat (*lichen tropicus*) is peculiar to certain warm seasons; frost-bite and its subsequent hyperæmia, exudation, or gangrene, occur in winter; pruritus is common in cold weather; erythema multiforme is most frequent in the autumn and the spring.

The questions originating when considering the influence of climate, are so complex that they are differentiated with difficulty. They involve the study of soil, potable water, diet, atmospheric humidity and temperature, and the sociological conditions of a given locality. Pellagra is said to originate in certain countries from the diet of the people. The severe forms of ringworm

observed in India result probably from exuberance of vegetation in the parasite under the influence of heat and moisture. The aggravated species of scabies seen in Norway is doubtless the product of filth and cold, with the itch-mite as an exciting cause. It must, however, be admitted that the more extensive the study of diseases claimed to be peculiar to given degrees of latitude and longitude, the less they are found to depart from the types recognized in other countries.

Frictional effects are perceptible in the action upon the skin, of the clothing. Coarse flannel is known to excite pruritus, especially when aided by profuse sweat and the muscular movements of the laborer. Trusses, corsets, napkins, "pads," supporters, crutches, orthopedic apparatus, hat-bands, stockings, garters, and a long list of similar articles, are responsible for many disorders, especially when soiled with physiological or pathological secretions. So in the occupation of men, bakers, masons, confectioners, blacksmiths, tailors, and an equally long list of laborers and tradesmen suffer from the results of friction, to which is often added the influence of traumatism or the action of chemical irritants.

Traumatism plays a most important part in cutaneous etiology. It includes the action in scratching of the nails, the knees, heels, elbows, etc., well illustrated in the case of infants whose hands are confined, as well as the influence of several articles used for the same purpose—pieces of cloth of various kinds, etc. In this way excoriations, and even infiltrations of the skin, are induced. Under the head of traumatism should be considered also injuries of the surface produced by animals, occasionally with the added effect of a toxicant. Here are included the wounds produced by lice, fleas, bugs, and acari; the bites of serpents, horses, dogs, and cats; and the accidents producing traumatism of every kind, not omitting the intentional wounds inflicted by the surgeon and their results.

Toxicants operate upon the surface with and without the production of traumatism. Thus the worker in dyes and the wearer of the dyed garment manufactured, may suffer alike; while vaccination, when it produces a generalized exanthem, operates first in the wound made by the lancet of the vaccinator. Medicaments used upon the outer skin, such as mercury, croton oil, iodine, antimony, and nitrate of silver, are capable of engendering disease; and those which, being swallowed, operate as irritants to the inner skin or mucous membrane, may have a similar effect. Others being swallowed and subsequently absorbed from the gastro-intestinal tract, produce a toxic effect upon the skin in the effort to eliminate them. Thus the bromide and iodide of potassium, quinine, arsenic, copaiba, and many other articles of the materia medica, occasion erythematous, vesicular, pustular, and bullous rashes of variable persistence and different external characteristics.

To the class of toxicants must be added the articles of food and drink, which under ordinary circumstances, and perhaps to the majority of individuals, serve to nourish the body, but yet operate

as poisons to the few. Thus alcoholic drinks, shell-fish, preserved meats, certain fruits, cheese, pickles, and many other dietary articles, are known to originate or aggravate pruritus, urticaria, eczema, and acne. Cracked wheat, Graham bread, oatmeal, and buckwheat have been found, in certain susceptible individuals, to induce pruritus, urticaria, and occasionally decided roughness of the skin. It should be remembered in this connection that any undigested or indigestible article of food may excite similar effects at one time and not at another, in the same individual, the resulting difference being due to the varying condition of the alimentary canal.

An important list of toxicants is furnished by the poisons either of animal origin or requiring for the mature development of their germs, culture in animal fluids or tissues. All of these are external sources of disease. None is known to be generated *de novo* in the human body. To this class belong the exanthematous fevers, glanders, farcy, malignant pustule, and syphilis. Some require traumatism for their introduction into the system; some do not, and some are capable of introduction both with and without traumatism.

This class includes the cutaneous disorders due to the presence of bacteria. In the present state of pathological science, it is impossible to define accurately the etiological importance of the microbes which have been demonstrated to exist in a number of diseases of the skin. In some, for example, lepra, these bacteria may be recognized as efficient factors of the disease; in others, as, for example, lupus vulgaris and syphilis, the etiological value of the bacilli which have been recognized in tissues affected with these diseases cannot to-day be irrefutably demonstrated.

Some cutaneous diseases are produced by the growth of the vegetable parasites upon and within the skin and hairs, and in the follicles. To this class belong ringworm of the scalp, beard, and skin; tinea versicolor, and favus.

Of the causes of diseases named, it may be said that no one of them is necessarily productive of such effects. The majority of men and women expose themselves daily to the action of light and heat, are subjected to friction, suffer from wounds of the integument, and come in contact with toxic agents, without exhibiting a disease of the skin. Often there is a marked degree of sensitiveness of the integument peculiar to the individuals who suffer, which may exhibit itself in several members of one family, or exist in one person for but a brief period of time. Again, an individual idiosyncrasy may be exhibited, in consequence of which an article, harmless to all others, becomes to one person only a source of serious discomfort.

The various physiological changes of the human body are never the causes of diseases of the skin, but at times furnish special opportunities for the operation of such causes. Thus in the rapid tissue evolution of early life, eczema and lupus are relatively common—carcinoma and tinea versicolor rare. At puberty the hairs of the beard of the male are liable to the incursions of the trichophyton; and the nipple and breast of the woman become the seat of eczema

from epiphora of milk. The old man and the old woman may become the victims of cancer, aggravated forms of pruritus, and horny growths. Dentition, menstruation, pregnancy, and the menopause disturb the physiological equilibrium, and at times render the access of other disturbing forces exceptionally facile. The sexual appetite leads to excesses which bear fruit in attacks of herpes, pruritus, and syphilis. And the unceasing excretion from the skin surface, with constant deposit there of effete material, may, when there is prolonged disregard of the laws of cleanliness, induce a liability to disease of the skin, which is especially marked in the case of infants and children.

The power to transmit skin disease by heredity is of less importance than is generally supposed. It is most conspicuous in the instances of hereditary syphilis; but even here the transmission of the disease is not without singular exceptions, and is limited to certain periods of the disease in the progenitors. The transmitted disease is also most common in the fœtus, which is in direct communication with the mother, and rapidly diminishes in frequency with every month of separate existence, till late and very late instances of hereditary syphilis have come to be received with suspicion. Many of the examples cited of hereditary transmission of cutaneous diseases are, without doubt, cases of coincidence, which, considering the number of patients affected annually with eczema and psoriasis for example, should not be regarded as of very rare occurrence.

The list of causes recognized as directly productive of diseases of the skin are, without question, under special circumstances, capable of operating as indirect etiological factors. Temperature changes, contacts with the external world in all harmful degrees, and toxicants are prime agents in the production of diseases of internal organs; and these, in turn, may induce changes in the skin, of the nature of disease. The uterus, the stomach, the liver, the kidney, the heart, the nervous centres, and the intestinal tract may become disordered, and the result be declared not only in disturbance of the function of these organs, but in an attack of urticaria, pruritus, jaundice, or erythema.

Without attempting to decide whether the preponderance of evidence is in favor of internal or external causes as productive of the greater number of cutaneous maladies, it is certain that disorders of the digestive tract sustain to many of them a most important relation. Thus the several conditions included under the somewhat indefinite term "dyspepsia," habitual constipation due to torpor of the intestinal tract, a portal circulation impeded by functional disturbance of the liver, and many other affections of the alimentary canal may each be productive of cutaneous accidents or complicate the results of the latter. In the same proportion, diseases of the kidneys, suprarenal capsules, spleen, and generative organs of both sexes may induce or be complicated by diseases of the skin.

The influence of the nervous system, when considered in this connection, may be either directly or indirectly exerted. There is scarcely any efflorescence upon the surface of the integument, the arrangement of whose lesion is not in part determined by the nervous fibres whether

with or without the intervention of an effect upon the bloodvessels. Both vaso-motor and trophic nerve-fibres are capable of inducing skin changes either after direct lesion or stimulation of the nervous centres, or through the medium of the latter after peripheral accidents of the same kind. Passive congestions of the surface, leading to œdema and violaceous blush of the skin, often result from circulatory changes; and, in fine, any constitutional disease, by impairing general nutrition, arresting repair, hastening waste, or in other directions impoverishing the protoplasm of the body, is capable of inducing disorder in the skin as in other organs. Thus in cancer, chlorosis, anæmia, and cholera there are significant alterations in the hue of the integument which not merely possess a diagnostic value for the clinician, but attest the sympathetic unity of each organ of the body with all others.

There are authors who affirm, with eminent French dermatologists, that certain states or diatheses explain the origin of many cutaneous maladies. These diatheses, whether termed "arthritic," "dartrous," "lithæmic," or "herpetic," cannot be demonstrated as efficient causes for the production of the diseases attributed to them. The chief exponents of these opinions are not agreed among themselves as to the names of such supposed systemic conditions, nor as to the symptoms by which they are betrayed, nor as to the exact method of combating their effects. The claim that these states are of a nature analogous to the tuberculous or syphilitic diathesis, is to-day well nigh deprived of foundation, since the bacterial origin of tuberculosis and syphilis is at least on the road to demonstration. The complexus of symptoms characterized by evolution without demonstrable cause, by frequency of recurrence, by obstinacy under treatment, and by alternation of cutaneous with other maladies, is no proof of a diathesis, but rather of the failure of science to appreciate perfectly all the several conditions which produce the result. As to the group of phenomena well described by Dr. Da Costa¹ as characteristic of lithæmia, even with the fullest recognition of such conditions the cutaneous symptoms displayed by those who are the subjects of that state are neither constant, uniform, nor peculiar. While no wise physician would hesitate to treat patients for the relief of such states when there was coincidence of skin disease, he would not be, therefore, justified, even after coincident relief of the entire group of symptoms of disease, in attributing one part of this group to a constant association with the others in the case of all patients.

Without attempting fully to discuss or to settle these questions, it is necessary to establish the fact that the eruptive phenomena in any skin are produced by a multitude of ever-shifting and varying combinations of causes. Even the syphilodermata are influenced from hour to hour by drugs swallowed, by external irritants, and by conditions of the general health, such as a transitory diarrhœa, or a fit of coughing. In the light of our present knowledge, it is the part

¹ The Nervous Symptoms of Lithæmia. American Journal of the Medical Sciences, p. 313, 1881.

of the physician, on the one hand, to neglect consideration of no efficient factor in the origin or evolution of a cutaneous disorder; and, on the other hand, to refuse to assign to a diathetic state only a group of symptoms which may occur in persons where no such systemic condition can account for the evidences of disease.

IV.

GENERAL DIAGNOSIS.

THE establishment of an accurate diagnosis in cutaneous diseases is essential to their successful management. This statement is rendered necessary in this connection by the prevalence of a belief among the uneducated that the disorders of the skin, exhibited for the most part in visible symptoms, can be safely treated on general principles, without a recognition of the nature of the malady. By many practitioners the demand for an accurate diagnosis is ignored in consequence of a too general impression that the desired end is to be pursued through great and perplexing obscurity. Yet with patience, method, a habit of careful observation (without which no physician is successful), and a reasonable degree of skill, both the practitioner and student can, in the large proportion of all cases, attain their purpose.

It is a popular error that the sole requisite for establishing a diagnosis is the exhibition of the affected portion of the integument to the eye of him who is consulted with a view to its relief. The physician is supposed to inspect this surface attentively for a few moments, and then to pronounce definitely upon the nature of the disease present, and the therapeutic measures to be adopted. But far more than this is requisite, and, indeed, fully as essential here as in the investigation of disease involving any other organ of the body.

It is first necessary to secure a history of the physical and mental condition of the patient in the past; then should follow the special history of the disorders of the skin; lastly, an examination of the affected integument. For the purpose of methodically arriving at these facts, and of preserving them for future reference, they should be systematically recorded. The following are some of the points upon which it will generally be found useful to secure information:

The name, residence, age, sex, occupation, and married or unmarried state of the patient should be known, as also, whenever practicable, the health-history of parents and children. In the case of women it is not only necessary to learn the history of the menstrual function in

the past, but of the highest importance to be informed as to the previous occurrence of abortions and miscarriages, and, if such have occurred, the order observed by these with relation to the birth of viable infants. The significance and value of several of these facts have been described in the chapter on etiology. With respect to the history of the products of conception, it should never be forgotten that these have a most important bearing upon the question of syphilitic infection; and the absolute exclusion of syphilis in any obscure case is a long step in the direction of an accurate diagnosis. In the case of male patients, questions will usually elicit either admission or denial of the fact of a precedent or present venereal disease, and the answers should be regarded as valueless or trustworthy according as they are or are not substantiated by corroborative clinical facts.

Then should follow some record of the habits of the patient, as to active or sedentary employment, bathing, food, and drink, including under the latter term the use of beer, wine, and spirits. The history of any previous disorders, whether of the skin or other organs, should be satisfactorily clear; and, with respect to the latter, the dates of occurrence, recurrence, and convalescence be at least approximately discovered. The patient should also make known whether he has had refreshing sleep; whether he has undergone mental anxieties (domestic, financial, etc.); whether he has suffered in his digestive, respiratory, circulatory, genito-urinary, or nervous system.

This much ascertained, the patient should be encouraged to narrate as succinctly as possible, and as far as may be in his own terms, the history of the present cutaneous disorder. He should give the subjective sensations it has produced, as also the objective features presented to his own vision and touch. In the case of infants this information will, of course, have to be obtained from the mother or nurse. The treatment to which the disease has been subjected should then be detailed. This frequently furnishes a key alike to the diagnosis and therapy of the disorder. In an incredibly large proportion of all cases, ignorantly directed and vicious internal or external medication has either begotten or aggravated the disease of the skin. This much ascertained, the physician is ready to examine the affected surface for himself.

During, however, the verbal interrogations which are required for this part of the exploration of the case, the watchful and observant practitioner will probably have secured for himself some useful information of which the patient is totally unconscious. Much of this is difficult to describe, as it is the rich fruit of a wide experience and careful scrutiny. With a gentle, courteous, and sympathizing manner, the diagnostician must combine the art of a detective and the skill of a swordsman. Glancing occasionally at the face of his patient while making record of the answers given, he will, of course, have observed any eruption upon that portion of the body. He will have made a mental note of the temperament of the sufferer, or any movement made by the latter indicating a tendency to scratch or rub any portion of the skin. He will have noticed the posture, clothing,

and head apparel; the existence of hair on the scalp or extensive baldness; the condition of the exposed hands, as indicating manual labor or the reverse; and, in the absence of facial lesions, will have observed the general tint of the skin of the face, as indicating anæmia, chlorosis, or a general condition of cachexia. The facial expression, as indicative of anxiety or placidity, habits of debauch, sexual excesses, etc., will not have escaped his attention. All this and much more will have possibly enabled the questioner to direct his interrogatories into the channel where they would elicit the most useful responses. The posture, cries, facial expression, and general condition of nutrition of the infant will have been no less carefully noted.

Proceeding to the examination of the affected integument, the physician must assure himself of a good light, as colors are best distinguished by daylight, and artificial illumination should be reserved for exploration of the cavities of the body. The air of the apartment should be sufficiently warm to permit of exposure of the person without discomfort. Adult males and children of both sexes should have the clothing completely removed, so that all portions of the skin may be inspected. One portion of the body may, however, be examined, and then recovered, if desired, while the examiner proceeds to direct his attention to another. In the case of women the investigation should be conducted with all the tact and delicacy to which the sex is entitled.

The examination, whenever practicable, should extend over the entire surface of the integument. The importance of this point can scarcely be exaggerated. It must be remembered that the physician should be very much wiser than his patient, and the assurances of the latter are always to be accepted with reserve. Thus, one who exposes his leg merely, stating that this is the only part of his body affected, may have concealed beneath his clothing extensive varicosities of the veins of the thigh, a typical syphilitic exanthem over the belly, a significant scar on his elbow, an extensive patch of *tinea versicolor* on the surface of the chest, or a blennorrhagic discharge from the urethra, the medication of which has induced the rash for which he seeks relief. These are not the rare, but the common cases of a daily experience.

Observation should be had at this time of the general and special features of the eruption. As to the former, the following considerations should be borne in mind:

A symmetrical eruption, one equally distributed over the two lateral halves of the body, is rarely the result of an etiological factor operating upon the outer skin. It more often points to an efficient cause of so-called internal origin, one influencing the inner skin or the internal organs. An eruption affecting the covered integument, never creeping out upon the exposed surfaces, suggests the operation of the clothing; as the latter may chance to prove the nidus or protector of a parasite, the fabric which has been colored by a noxious dye, the recipient of a chemically altered secretion, which has proved

irritating to the surface, the instrument of friction, or the source of increased temperature at the surface by its non-conductivity of heat and unseasonable thickness. An eruption, accompanied by excoriations and scratch-lines, is that usually most severe in the parts most accessible to the hands, and least developed where the latter have the least play, as over some parts of the back. An eruption limited to the hands is likely to be one induced by an agent to which the hands alone have been exposed, as those originating in the trades and domestic occupations; while in the latter, an eruption more distinct on the right hand, and especially about the right thumb and index finger, tells its own story when the hand-worker is not ambidextrous or left-handed. Artificially and intentionally produced eruptions, as in malingering, hysteria, mental depravity and insanity, usually occur also in parts to which the right hand finds easy access.

Eruptions occurring on the face, hands, and genitalia of men, or face, hands, and mammæ of women, point to external contact or contagion (poison-ivy, scabies, croton-oil, etc.); since, next to the face, the hands are more commonly brought in contact with the parts named in the sexes respectively, as the wearing apparel of each suggests.

An eruption, limited to the forehead, suggests an inspection of the hat-band, the veil, or the overlying false hair; to the ears of women, a glimpse at possibly cheap ear-rings; to the centre of the root of the neck, before or behind, a scrutiny of the collar-buttons and collars; to the anus of the baby, an inquiry as to the changing of its napkins; to the wrists of the adult, a question as to the cuffs worn; to the feet, information respecting gaiters, varicose veins, recently cut corns, and ill-fitting shoes. Eruptions springing from each of these causes have been long and vainly treated as "diseases of the blood."

Eruptions markedly asymmetrical are indicative of asymmetrically operating causes—that is, the accidents of environment, or else influences exerted within the body unequally on its two lateral halves. Thus an orthopædic apparatus, worn to correct talipes, excites an eczema in the leg only of the affected side; and zoster of the trunk is evident on that side supplied by the intercostal nerve which has been inflamed. The greater stress may be laid on this peculiarity, as the law of symmetry, in eruptions not occasioned by causes operating on the outer skin, is faithfully observed in nature. The earlier syphilides, the quinine exanthem, rubeola, and even lupus erythematosus, are remarkable illustrations of this fact.

Proceeding next to the special visible characteristics of the eruption, the physician will not fail to note an acuteness or chronicity of lesions; their color, size, distribution, tendency to become aggregated in patches, or the reverse; and the evidence presented as to change in type, the sequence or coexistence of several lesions at the same time—that is, the multiformity (polymorphism) or uniformity of the eruption. He will observe whether the limit of the affected skin is well defined against that which is normal, or scarcely to be outlined

with a pen or pencil. He will rupture a bleb, pustule, or vesicle, should such be found, to discover the nature of its contents. He will remove one or several crusts in sight, to expose the surface on which they rest. He will remove a few scales with the dermal curette for a similar reason. He will as carefully inspect the skin where the disease has existed, as that where it does exist. He will pinch up between his thumb and finger a portion of each, in order to determine its infiltrated condition; its atrophy; or its attachment to the tissues beneath. He will pass his hands over the surface to recognize the firmness or softness of the lesions, their dryness or moisture, and the existence of sebaceous or perspiratory secretion. He will look at the mouths of the follicles, where such secretion is retained or abundantly exuded. He will discover any lice or ova on the hair; any ascarides at play about the anus; any unnatural formation of the nail, or deformity of its matrix. He will examine for inguinal, post-cervical, axillary, and epitrochlear adenopathy, and will thus be often greatly aided in his task. This done, he will question in turn for himself, and by the methods recognized in medical science, the organs of the body other than the skin. He will inspect the tongue carefully, and then, if he is through with the mouth, he will be guilty of great error. The gums rarely deceive the questioning eye; the inside of the lips, fauces, and tonsils are all to be searched. A mucous patch here will often echo the story of a palmar or plantar syphiloderm. The laryngoscope may be called for in syphilis, cancer, lupus, and leprosy. The degree of distention of the belly and the region of hepatic dulness should not be overlooked. The genitalia of men, and of children and infants, can usually be explored. For women unaffected with syphilis or disease limited to these parts, an exception in this particular should usually be made.

With the necessary reserve of all very obscure cases, it may be said that the physician who has conscientiously conducted an examination after the manner described above, is in possession of the diagnosis for which he seeks. If the facts thus acquired have been properly recorded, and yet do not spell out such a diagnosis to his eyes, they are probably legible to others with a wider experience or riper judgment, to whom such a record is shown. It is not claimed that this exhaustive method of examination is requisite in every case, as, for example, in order to recognize an acne or to differentiate erysipelas from erythema. But it is certain that few obscure cases of skin disease will remain such under severe scrutiny, and the establishment of a thorough and exhaustive method of examination is important in the earliest experience with disease. Let the student or practitioner conduct such an examination in the first few cases of eruption upon the surface of the body for which his advice is sought, and he will establish a habit of observation in comparison with which his pecuniary or professional success in the management of the same cases will be indeed of trivial worth.

Upon one special point should the inexperienced physician be guarded. It relates to the acceptance of a diagnosis which is *not*

based upon such an examination as that given in outline above. A diagnosis by a patient is usually faulty, and the verdict of even skilled practitioners may be founded upon an error. The careful diagnostician should commence his task in a spirit of scepticism, and pronounce definitely only upon ascertained facts. The man who says he has an "eczema" may be louse-bitten; the woman who has been "overheated" may prove syphilitic. The patient recognized as suffering from ringworm of the beard may not have been infected under the hands of the barber. Finally, the eruptions upon patients unmistakably syphilitic, are often of other than syphilitic origin. They are men, women, and children exposed daily to the accidents from which the non-infected suffer. They exhibit acne, physiological alopecia, and dermatitis medicamentosa equally with those who have not sinned sexually.

The microscope is an instrument whose aid in establishing a diagnosis of cutaneous disease can rarely be dispensed with. The contributions it has made to the knowledge had on the subject of pathology are of inestimable value; and as a means of diagnosis it can be used with advantage both at the time of the first examination of a patient, and afterward for the more leisurely examination of hairs, scales, crusts, or portions of tissue. Those unable to secure the costlier and elaborate instruments sold by the makers, should take pains to provide themselves with a fairly good student's stand, and a fifth and half inch objective for use in the diagnosis of skin diseases.

The diagnosis of special diseases of the skin is described in the chapter devoted to each.

V.

GENERAL PROGNOSIS.

THE prognosis of most diseases of the human body is formulated with a view to the decision of the serious question of life or death. Occasionally this question arises in connection with skin diseases. Many of the latter are trivial; some are grave; a few, inevitably fatal in their termination. Thus general exfoliative dermatitis, leprosy, sarcoma, carcinoma, at times lichen ruber, and variola in the unprotected, are of grave portent; while the ordinary congestions and exudations, the great majority of all cases of acquired syphilis in adults, and the entirely curable diseases induced by parasites do not excite alarm in the breast of the average patient with respect to his longevity.

The questions, however, as to his future, which are urgently pressed by the victim of cutaneous disease, are both numerous and important.

He is anxious as to the time during which he must suffer; as to the possibility of conveying his disease to his progeny or other members of his family; as to the disfigurement of his person which might result; as to the scars which he may have to carry for the remainder of his life; as to the possible recurrences of his malady in the future. The responses to these questions will be largely influenced by the prognosis of the physician.

Some diseases of the skin are acute, rapidly pursue their course, and are then prompt to disappear. Others are chronic, rebellious to treatment of the most energetic and skilful character. Others, again, though not shortening life, are never relieved while life is continued. Some disappear, only to reappear at more or less regular intervals. There are cutaneous diseases which affect one individual but once in his lifetime; others which reappear at the instant the patient is again exposed to their exciting cause. There are cutaneous diseases so distorting and destructive in their effects, that their victims have committed suicide under the influence of the morbid emotions which they have as a consequence experienced.

The mental distress occasioned by even an insignificant cutaneous disorder is often out of all proportion to its exciting cause; and this should always be regarded in establishing a prognosis. The sexual hypochondriac has been made insane by an acne; and the man or woman affected with syphilis has been made wretched for years by a recurrent erythema.

Again, a disease of the skin may coexist with grave lesions of internal organs, and the prognosis of the disease of the one be greatly influenced by that demanded by the other. Thus there is occasional coexistence of syphilis and phthisis. Pruritus may be associated with Bright's disease of the kidneys; and the eczema of an infant starving for want of breast-milk may hasten its marasmus to a fatal termination.

Upon the answers given to his patient inquiring as to the prognosis of the disease of the latter, will largely depend the professional success of the physician. Scrupulous honesty should be here welded with all the skill that science can command. That a disease does not endanger life, is not an argument in favor of its amenability to treatment. The practitioner should never suffer himself to be pushed by his patient to the position that an obstinate disease is readily manageable. It is the height of folly to estimate lightly that zoster of the forehead, the scars of which the patient will exhibit to all who afterward look upon his face both in life and death. He who engages to relieve an alopecia areata in the month, may have a year in which to repent his precipitancy. There is no way in which the conscientious physician can so readily secure the confidence of his patient, and with it that willingness to submit to appropriate treatment, which is begotten of such confidence, as by demonstrating his ability to forecast the future of a disease; in other words, to describe accurately its prognosis.

VI.

GENERAL THERAPEUTICS.

A CONSIDERATION of the subject of the methods of treating skin diseases in general, suggests at once the intimate relation which subsists between the integument and other organs of the body. The etiology of one, largely explains the causes of the disorders in all. The pathological processes in each are subordinated to the same general laws. The principles of treatment are very similar, in all the disorders of the body.

The object to be attained by treating a cutaneous disease is, first, its complete relief; second, where the latter is impossible, such a management of the morbid process as will mitigate its severity and render the victim of the disease more comfortable. A higher and more scientific achievement than either is the prophylaxis by which man is enabled to escape the disease altogether. He can by his wisdom largely diminish the danger to which his integument is exposed. He can, to a certain extent, shelter himself from extremes of temperature, traumatism, toxic agents, and the contagious diseases. He can, by observing the simple rules of hygiene, fortify his skin against the lesser evils which may befall it. If it be true that "the people perish for the want of knowledge," it is certain that once in possession of it, they can greatly enhance their comfort and prolong existence. Here, however, the subject under consideration involves disease which is actually present and in progress.

Like all other diseases of the body, those of the skin may be divided into three classes with relatively fixed limits.

The first embraces all the diseases which have a natural tendency to pursue their course to a favorable termination. It embraces all those affections which, either mild or severe, require absolutely no treatment of an active character. It is the duty of the skilful physician to watch the evolution of these maladies, and to discharge a most important part by refraining from all therapeutic measures which in such cases might prove hurtful. By his judicious counsel also, he hinders patients and their friends from pursuing a course which might prove prejudicial to the disease.

The second class embraces all those affections of the skin which are either inevitably fatal or hopelessly remediless while life is prolonged. Fortunately, this includes but a small proportion of the large list. Here the duty of the physician is plain. He should assuage pain, attempt to relieve deformity, administer to the comfort of the afflicted in other ways, and, by his patient courage, inspire confidence and hope. It must not be forgotten that the skill of man has not

yet reached the acme of human need. In the presence of many diseases of the body, he stands absolutely helpless; and the speediest way to success in such cases is to begin by an honest admission of the plain fact.

The third class of affections naturally embraces all not included in the other two. Here disease may be prolonged or shortened in its course, rendered acute or chronic, made more or less endurable, permitted to become inveterate, or be absolutely relieved, by prompt and energetic measures, according as it is, or is not, judiciously and skilfully managed. Here are gained the most brilliant successes of the dermatologist; here also occur his most humiliating failures.

In the presence of a cutaneous disease which requires treatment, a question naturally arises as to whether this treatment shall be internal, that is, by medicaments ingested; or external, that is, by local therapeutics; or by combination of the two methods at the same time.

With regard to the first question (concerning the INTERNAL treatment of skin affections), which is one of pressing importance, it can be safely said that there are no remedies to be given by the mouth which can be described as certainly and specifically curative of the diseases of the skin. The number of medicinal agents employed with this end in view is incredibly large, by far the greater part being obtained from the vegetable kingdom. With few exceptions, for the most part enumerated below, the most esteemed of these exert only an indirect therapeutical effect upon the integument. The larger number of medicaments thus used are, it must be admitted, without value of any kind, but will probably continue to be vaunted as possessing specific virtues so long as credulity on the one hand, and avarice on the other, move the mass of mankind.

ARSENIC has long stood at the head of the list of remedies as valuable, when ingested, for the relief of cutaneous disorders. It is known to exert its effects almost exclusively upon the epithelia of the skin, and upon these, so far as therapeutic effects are concerned, only when they are in indolent conditions of subacute and chronic exudation. It is known to exert an unfavorable influence upon the epidermis when the latter is in a condition of active inflammation. Operating in this limited class of cases favorably, it also operates slowly, requiring months for the production of its curative effects. Its administration is at all times attended with the hazard of producing toxic effects, which, however, when the result of the exhibition of the drug in medicinal doses, are usually limited to a mild exanthem upon the skin, moderate coryza, and some redness from congestion of the vessels in the eyes and eyelids.

It is used chiefly in psoriasis, acne, squamous eczema, pemphigus, and lichen ruber; its dosage in cases of children being relatively large. It should be invariably administered only after eating, and a minimum dose be first employed in order to test the susceptibility of the patient to its action. It should be remembered that the toxic effect of this, as also of several of the other drugs mentioned below, is often speedily noticed after the first exhibition of a relatively small

dose. Toleration once established, the dosage may be cautiously increased.

The forms in which it is usually administered are the preparations of arsenious acid, such as the liquor potassii arsenitis (Fowler's solution); the liquor arsenici et hydragryri iodidi (Donovan's solution); the liquor arsenici chloridi; and the Asiatic pill. Duhring's modification of this pill is obtained by making two grains (0.13) of arsenious acid, and thirty-two grains (2.2) each of black pepper and liquorice powder, into thirty-two pills by the aid of a sufficient quantity of mucilage. Arsenic is also at times advantageously combined with other indicated medicinal substances, such as iron and the iodide of potassium.

In the first edition of this treatise, it was stated that an unprejudiced view of its action, even in cases properly selected for its internal administration, would justify the conclusion that arsenic is in diseases of the skin a remedy of uncertain effect, and, in that proportion, disappointing. Subsequent investigation, made particularly by American observers, has more than established this position. Dr. G. H. Fox, of New York,¹ after collation of the experience of a number of experts in this country concluded that the common practice of giving arsenic in many cutaneous diseases was both harmful and irrational, not merely because of its effect in inducing cutaneous congestion and pruritus, but because of the reliance placed upon it to the exclusion of other and better methods of treatment; and that the beneficial effects supposed to follow its administration were often due to other causes. He also called attention to the striking fact that no series of carefully recorded cases had ever been published in which notable therapeutical results had been shown to result solely from its administration.

These conclusions elicited a number of statements from well-known physicians having experience in the management of cutaneous diseases, who, for the most part, assented to Dr. Fox's conclusions. Even in pemphigus, psoriasis, chronic eczema, and lichen ruber, where the remedy has been thought to possess special efficacy, it has in cases conspicuously failed.

It is safest to conclude, first, that arsenic, instead of being one of the earliest, should be one of the last remedies selected in the management of cutaneous diseases by the general practitioner; second, that, when thus selected, its value will probably prove greatest if the eruptive lesion be superficially seated, generalized, diffused, or in evident association with neurotic symptoms; third, that in any case its failure should not be regarded as definite, if only Fowler's solution has been administered.

The value of MERCURY in the syphilodermata is incontestable, and its injudicious employment in many cases springs from that precise fact. The vulgar prejudice that many disorders of the skin, really not syphilitic, are obscure manifestations of lues in a preceding gen-

¹ Journal of Cutaneous and Venereal Diseases. June, 1886, p. 179.

eration, and amenable to mercurial treatment, is a striking illustration of the necessity of accurate diagnosis in cutaneous diseases. Few non-syphilitic affections are benefited by continuous courses of mercury, though the value of the metal as an alterative in this small proportion of cases must be admitted. The corrosive sublimate is often superseded, in consequence of its irritative effects, by the compounds of the metal with iodine. The gray powder is useful chiefly in case of infants and children, though its not infrequent development of the corrosive chloride has largely limited its favor with Americans. Calomel and the mercurial pill should be employed only for transient effect, as, when administered for long periods, they are much more apt to produce pytalism than the other preparations mentioned.

IODINE and its compounds are also chiefly used by the dermatologist in syphilitic disorders of the skin, but they possess a wider range of value than the mercurials in the treatment of other cutaneous affections. Here, too, the abuse of the drug furnishes a long list of cutaneous disorders either originated or aggravated by its employment. As in the use of arsenic, toleration should be established before large doses are exhibited. The compounds chiefly used are the iodides of potassium, sodium, lithium, and ammonium, and iodoform. It has been administered for the relief of the scrofuloderma, lupus, keloid, and syphilitic affections of the skin. As to the latter it may be added that in the earlier symptoms of lues it is often a source of positive injury.

COD-LIVER OIL is a remedy of special value in diseases of the skin, and was for that reason held in high favor by the distinguished Hebra, though its action is almost exclusively that of a nutrient of the general system. It is employed chiefly for its roborant effects, and these are similar to those of the digestible aliments. Its special value in the treatment of infants and children affected with cutaneous diseases cannot be questioned. It is, however, of great use also in maturer years, and is advantageously exhibited in eczema, lupus, scrofula, syphilis, scleroderma, and in all the disorders of the integument accompanied by wasting.

QUININE, administered both as a tonic and antiperiodic, is largely employed in cutaneous medicine for its generally recognized systemic effects. It produces, in certain susceptible individuals, a peculiar smoothness and softness of the skin, which usually disappear when the drug is suspended. Like arsenic and iodine, it is occasionally the cause of a generalized exanthem, and is capable of producing other toxic effects, such as failure of the heart's action, dizziness, and tinnitus aurium, symptoms recognized under the designation of cinchonism. It will, of course, exhibit its happiest effects in malarial affections with coincidence of cutaneous symptoms in the forms of disease of the skin associated with a neurosis.

ERGOT, whether by exerting an effect upon the muscle-bundles or vessels of the derma, or upon the uterus, or yet by its influence upon the general economy, is thought to possess some value in the treatment of several cutaneous diseases occurring in both sexes. Such are acne, purpura, and a few other disorders.

CALX SULPHURATA may be regarded as the most efficient of the sulphur compounds for internal use in cutaneous diseases. Its recognized value in furunculosis has led to its employment also in eczema, acne, and impetigo. It is given in doses of from one-tenth (0.004) to one-fourth (0.016) of a grain, three or four times daily. Chrysarobin has been administered internally by Stocquart¹ and others in doses of one-sixth (0.01) of a grain for a number of cutaneous disorders. ICHTHYOL, mentioned later as of some value when externally employed, has also been given by the mouth. JABORANDI and PILOCARPINE, probably as the result of the free diaphoresis which they excite, have unquestionably exerted immediate therapeutical effects in a number of cutaneous disorders.

TAR, CARBOLIC ACID, and PHOSPHORUS are remedies which have been employed internally with appreciable effect in certain cutaneous maladies, but the action of each is uncertain, and at times highly prejudicial. They have been used with advantage in cases of lupus, eczema, psoriasis, and pruritus; but their internal administration has been to a great degree a bar to their general employment. The "perles" of phosphorus, and the elegant elixirs of the same drug now in the market, seem to have obviated this difficulty in the instance of at least one of these articles.

Unpromising as is confessedly this brief review of the remedial influence which internal medicaments are capable of directly exerting upon the skin, it must not be forgotten that, while the treatment of the patient and the treatment of the patient's skin are practically one, there is some distinction to be drawn between them. No one would claim that castor oil, for example, possessed any efficacy in the fracture of a femur, yet such a cathartic is frequently ordered by the surgeon, with the happiest effect upon the condition of his patient in a splint. Such precisely is the inestimable value of a properly conducted internal medication in cases of cutaneous disease.

The consideration of this point introduces us at once and properly to the broad field of general medicine. He is totally unfit to treat cutaneous diseases who is not qualified by education and experience for the general practice of medicine. The internal treatment of the patient suffering from a disease of the skin, is that which is in each case indicated by his general condition. Thus the aperients, cathartics, diuretics, and occasionally even the anodynes, are demanded, and, when judiciously employed, accomplish beneficial results. Few

¹ Ann. de Derm. et de Syph. 1884.

practitioners can afford to dispense with the use of the preparations of iron, for example, in cases of anæmia. Even the patient affected with a parasitic disease may need one of the bitter tonics, and the youth with vegetations upon the glans may require first to be rid of his blennorrhagia.

Among the medicinal substances indicated by the general condition of the patient affected with a disease of the skin yet not directly acting upon that organ, none are more useful than the diuretics, cathartics, and remedies acting as stimulants to the secretions of the chylopoetic viscera. At this day no educated physician believes in employing medicines with a view to either the so-called "driving out" or "driving in" of a disease of the skin, much less to a use of evacuants with a view to carrying off a supposititious *materies morbi*. The remedies suggested above are undoubtedly, for the most part, useful in diminishing the congestion of the cutaneous capillaries, an important point not only with respect to the comfort of the patient but to the relief of his ailment.

He who accomplishes the largest success will not, finally, neglect consideration of the diet, hygiene, and social surroundings of the patient. The chief value of many of the mineral springs and health resorts of this country lies in the change of the manner of living which they invite and necessitate. Sunshine, pure air, recreation after the care and toil of business, change of climate, of foods and drinks, and even of cooks, often decide the question of speedy recovery. Unfortunately, both in this country and abroad, many of the health resorts are peopled by unscrupulous charlatans, with a myopic tendency to attribute all the benefits to be derived from these sources to the medicinal virtues of this or that particular spring, aided always by treatment according to their own peculiar methods. Many patients affected with disease of the skin are thus made worse by a temporary residence at noted health resorts, and, therefore, it is often the case that a visit to the seashore, the mountains, or any healthful place in the country proves conducive to far greater practical results.

This understood, it is admitted that many of the springs of our own country possess a therapeutical value in cutaneous diseases actually dependent upon the constituents of their waters. A new study of this interesting and important subject is demanded by the annual discovery of new sources within the borders of the United States, which give a large promise for the future. Many of those ignorantly recommended as valuable for the entire list of cutaneous disorders are either entitled to no such encomium or may be usefully employed only in a limited number of skin affections. Large successes are undoubtedly to be credited to the scores of ferruginous, sulphuretted, chlorinated, alkaline, arsenical, purgative, and other springs whose names appear in the lists given by European writers on this subject. Most of these are represented in this country by waters of equal, if not greater value, furnished by the numerous spas of Michigan, Virginia, New York, Colorado, New Mexico, Utah, and other States and

Territories of the Union. As these are brought within reach of a larger portion of the population of the country by greater railway facilities, their medicinal value will be better appreciated, and they will be much more systematically employed than at present. They offer a most promising future for the internal treatment of diseases of the skin in this country.

In the EXTERNAL treatment of diseases of the skin, the indications are, to hasten repair when this is possible; to alleviate distress, if palliatives only are admissible; to destroy absolutely or excise the diseased tissue, when this is justifiable. The following are the principal substances employed as external applications:

WATER, either pure or medicated by holding other substances in solution or mechanical suspension, is applied either in baths or lotions. Baths, local or general, may be employed for days continuously, or but for a few moments at a time. They are given with water of varying temperature, cold, warm, or hot. Cold baths of short duration are generally followed by a sharp reaction, the skin becoming congested after the normal temperature of the surface is regained. Thus it is that cold sponging of the inflamed skin is usually grateful so long as it is continued; and is succeeded afterward by an aggravation of the symptoms which it was intended to relieve. Continued applications of cold water are not open to this objection.

Hot baths are followed by a more or less enduring relaxation of the integument, while those given with tepid water are chiefly macerative of the surface. It should be remembered that the application of watery lotions to the broken surface of the skin, is liable to be followed by endosmosis, unless the specific gravity of the serum of the blood and that of the fluid of the bath or lotion are nearly the same. This imbibition of fluids by the broken skin is accompanied by slight swelling of the tissues and productive of disagreeable sensations.

The most perfect of all methods by which water is applied to the surface of the body, is that which most resembles the water-bath in which the tender skin of the fœtus is safely immersed for consecutive months. Here the bath is continuous; the temperature, that of the viscera of the living animal; and the delicate skin of the unborn child, anointed with a fatty substance which actually interferes with the macerative action of the surrounding fluid so long as vitality is preserved at the average standard. The comfort and therapeutic value of a bath prepared and administered in approximation to this ideal, can scarcely be overestimated. Were it not for the difficulties with which it is attended, so far as relates to many portions of the surface of the body, it would be possible with this single therapeutic measure to rob the exudative affections of the skin of a great part of their formidable features.

In acute inflammations of the skin, the application of pure water,

even when of proper temperature, is often prejudicial to the integument; and soap and water washings may prove quite harmful. The greatest caution must be exercised in giving instruction to patients as to the washing of the inflamed skin.

Water for external application, as in the bath, is medicated by the addition of a large number of substances, such as marine salt, sodic and potassic salts, alum, tannin, the mineral acids, mucilages, gelatin, bran, and, especially in the Southern States of this country, the orange leaf.

The alkaline bath, made by adding the bicarbonate or the biborate of sodium to water of the proper temperature in the proportion of twelve ounces of either salt to thirty gallons, is usually grateful to the inflamed skin. Sulphur baths are best prepared by adding an ounce of Vlemineckx's solution¹ to the same quantity of water.

When employed as a lotion, water is made to produce a sedative effect by the addition of opium, belladonna, glycerine, carbolic acid, hydrocyanic acid, zinc, bismuth, mercury, lead, and the alkaline bicarbonates with the sodic biborate. It is rendered stimulating by the admixture of alcohol, most of the acids and alkalies in stronger solution than in the soothing or sedative lotions; and by a large number of substances which operate upon the surface either mechanically or chemically. It is also rendered astringent when tannin, lead, and similar medicaments are dissolved in it; and by its union in various degrees with soaps and alkalies a solvent effect is produced, either upon the cuticle itself or upon pathological or foreign products upon its surface.

Water is employed also, both in the form of the douche and vapor bath. When evaporation is prevented, by covering the wet surface of the body with an impermeable tissue, such as gutta-percha or rubber cloth, still further macerative effect is produced. The sweat alone is in the same way converted into a macerating agent.

Lotions other than those containing water are often serviceable. The fluid in such case may be alcoholic, ethereal, or oleaginous, and medicated to any desired effect.

SOAPS are of great value when applied to the skin. The hard, or soda, soaps are employed chiefly for the purposes of ablution. The soft, or potash, soap has a wider therapeutic range. In consequence of the small excess of caustic potash which it contains, it not only serves to cleanse the skin of any accumulations upon its surface, native or foreign, but also to exert a mild, destructive effect upon the horny layer of the epidermis. Digested with rectified spirits of wine in the proportion of two parts of the soap to one of the alcohol, it forms the well-known "spiritus saponis kalinus" of Hebra, a preparation which the modern dermatologist employs constantly with admirable results.

¹ The formula is:

R. Calcis,	3ss;	16	
Sulphur sublim.	3j;	32	
Aq. dest.	3x;	320	M.
Coque ad 3vj [200] deinde filtra,			
Sig. "Vlemineckx's Solution."			

MEDICATED SOAPS, containing carbolic acid, glycerine, tar, sulphur, and various oils, are sold in the shops, but contain so small a portion of the individual medicament from which each is named, that they are practically worthless except for purposes of ablution. The author has had such prepared under cold pressure, so as to contain medicinal substances in therapeutic proportions; but, after experimentation, has concluded that other forms of administration are preferable.

FATTY AND OILY SUBSTANCES are applied to the skin either directly by pouring, or by friction, or by the mediation of compresses, bandages, etc., which are saturated or spread with the material to be applied. The oils may be used for either nutritive, soothing, or stimulating effects. To the first and second classes belong cod-liver, lard, olive, almond, linseed, neat's-foot, castor, and similar oils; to the third class, the oil of tar, of cade, of white birch, of the cashew nut, and of juniper.

Fatty substances are also applied in the form of ointments or pomades. They are compounded with various medicinal substances, according to the requirements of each case, such as the salts of mercury, zinc, copper, lead, and sulphur; pyrogallol, chrysarobin, carbolic and hyposulphurous acids; tar, camphor, iodoform, balsam of Peru, hydrate of chloral, the extracts of opium, belladonna, etc.

The products of petroleum refinement, known as VASELINE and COSMOLINE, though not true fats, are increasingly employed for similar purposes, and continue to enjoy high favor in this country and abroad. They are particularly useful as bases for ointments for application to the hairy portions of the body, such as the scalp, when more consistent salves paste the hairs to the surface in an unsightly mass.

GLYCERINE—even the best—is, when applied in its purity to the skin, usually irritating. It is, however, exceedingly useful when diluted or made a component part of lotions and ointments. When combined with starch it makes, in different proportions, a series of combinations known as glyceroles, or glycerolates. These are pasty, semi-solid substances which are capable of varied medication, as in the glycerole of the subacetate of lead proposed by Dr. B. Squire, of London. They are useful chiefly as protectives of the surface. Glycerine, when used in a fluid soap, is an exceedingly valuable agent when a milder effect is desired than that produced by the spirit of soap described above. The Vienna preparation known as Sarg's fluid soap is an admirable substitute of this sort when a soft shampoo is required for the scalp.

THE PASTES employed for local application in diseases of the skin have been greatly perfected by Lassar and Unna.¹

These pastes are valuable especially in the exudative affections, where salves are often either not well tolerated or actually prove irritating to the skin. The pastes, when applied to such surfaces, form a protective and adhesive dressing, which may be medicated as desired.

¹ Monatsh. f. prakt. Derm., February and March, 1884.

They are prepared with kaolin [terra alba, or Armenian bole of red color, when it is desirable to have the application resemble the color of the skin], gum, lead, dextrine, glycerine, and other substances. Formulæ for each are here appended :

Kaolin in a pure state, with equal parts of vaseline or glycerine, or with almond, olive, or linseed oil, in the proportion of two to one, is readily applied in a thin layer over the skin. When it is desired to add the oxide of zinc, or the plumbic acetate, the kaolin and oil or glycerine are first carefully mixed, in order to prevent the formation of an insoluble compound—*e. g.*, *R.* Kaolini pur., ol. lini [vel glycerini], āā 30 parts; zinci oxidi, liq. plumb. subacetat., āā 20. *M.*

For making lead pastes, litharge is boiled with twice the quantity of vinegar till the latter has evaporated and a damp but drying paste is left, which may be, on occasion, remoistened with a small quantity of vinegar—*e. g.*, *R.* Lithargyr. subt. pulv. 50; aceti, 80. Coque usque ad consistent. pastæ: deinde adde ol. lini [v. glycerini, v. ol. olivæ], 10. *M.*

In the two forms of pastes above described, the adhesive and desiccative qualities are obtained from the main ingredients, but in those resulting from combinations of gum, starch, and dextrine, these results are for the most part obtained by the addition of other ingredients, such as sulphur, zinc, etc. A good basis, semi-solid, rapidly drying, and fixing its ingredients well upon the surface, is the following: *R.* Amyli oryzæ, 3; glycerini, 2; aq. dest. 15. *M.* Coque ad remanent. 15. For convenience, the solid substances are mixed at once with the glycerine, starch, and water, and then heated together. *R.* Zinci oxid. 50; acid. salicylic. 2; amyli oryzæ, glycerini, āā 15; aq. dest. 75. Coque ad 140. For a sulphur paste: *R.* Sulphur. præcipit. 40; calc. carb. 2; zinc. oxid. 20; amyl. oryzæ, 15; glycerini, 20; aq. dest. 75. Coque ad 120.

Here is a formula giving a combination of starch and lead resembling cream: *R.* Amyli oryzæ, 10; glycerin. 30; lithargyr. 30; acet. 60. Evapora ad 80. By adding 10 parts more of litharge, and 20 more of vinegar, and evaporating to 90, a thicker and cement-like paste is formed.

To make use of dextrine, the officinal pulverized article is selected, and a simple paste of this forms a good drying base. An added half-weight of glycerine is required if powders are also combined with the paste—*e. g.*, *R.* Zinc. oxid. 40; dextrin., aq. dest., āā 20; glycerin. 40; sulphur. sublim. [vel. sod. sulpho-ichthvol.] 2. Coq. A mixture of dextrine and lead is thus prepared: *R.* Lithargyr. 30; acet. 50. Coque ad remanent. 50; adde dextrin., aq., glycerin., āā 15. Coque. If too consistent, these pastes are made to spread easily by the addition of a few drops of hot water. Such water is not required in making the paste if another fluid be one of the constituents, as, *R.* Dextrin., glycerin., liq. plumb. subacet., āā 10. *M.* Coq. ft. pasta.

For the gum pastes, gum arabic is used in the proportion of one part of mucilage and glycerine to two of the powder selected, mixed without heat—*e. g.*, *R.* Zinc. oxid. 40; hydrarg. oxid. rub. 2;

mucilag. acac., glycerin., āā 20. M. R. Cret. præparat., sulphur. sublim., āā 2; picis liquid. 8; amyli, 20; mucilag. acac., glycerin., āā 15. M. R. Acid. salicylic, 20; glycerin. 20; mucilag. acac. 30; ol. ricini, 10. M.

The author gives the following details respecting the availability of these pastes for different ingredients: Lead is best used as an acetate, either in a simple paste or with dextrine; the carbonate, oleate, and iodide combining well with both. Zinc oxide combines well with kaolin, lead, starch, dextrine, and gum. Sulphur combines well with the three last named, poorly with kaolin, and not at all with lead. Ichthyol suits well with all save the gum pastes. Naphthol, calomel, corrosive sublimate, red and white precipitate, carbolic acid, chloral hydrate, camphor, and salicylic acid can be incorporated with all, the last named in smaller proportion with gum paste. Tar is better united with starch, dextrine, and gum, than with the others. Iodine and iodoform naturally do not suit well with the starch and dextrine pastes. Chrysarobin and pyrogallol are united with kaolin and gum pastes, but acids in general destroy the adhesiveness of the gum pastes and should not be added to them. Fatty and soapy substances, if commingled in large amounts with these pastes, injure their special properties.

POWDERS are mechanically dusted over the surface of the skin for the purpose of protecting it, and occasionally in order, also, to produce an astringent or anti-pruritic effect. In order to be serviceable, they should generally be rendered impalpable by sifting them carefully through a fine silk bolting-cloth. They are composed of starch, magnesia, lycopodium, bismuth, boric acid, camphor, tannin, oxide of zinc, iodoform, salicylic acid, and similar substances. The articles sold by grocers as "Oswego Gloss Starch" and "Corn Starch Farina" are usually much more finely bolted than the dusting-powders extemporaneously prepared by chemists. As absorbent powders, the starchy substances are open to the objection of forming little pasty rolls or "cakes," when wet with serum or sweat. Lycopodium, which is seen under the microscope to consist of irregularly globular pollen sporules, never behaves in this way, and is, for that reason, deservedly popular.

Dr. Faithful, of Australia, has recently suggested the preparation of medicated powders by first dissolving them in alcohol, ether, or chloroform. The solution is then mixed with starch or French chalk. Evaporation of the menstruum is conducted without artificial heat, and a fine, medicated starch or chalk powder results.

PLASTERS are employed when it is desired to exert a more or less continuous effect upon the skin, and are thus necessarily consistent and desirable. The resin plasters are less useful in skin diseases, because more irritating than the lead plasters. Unna's plaster-mulls are described below. The mercurial plasters are useful, especially in syphilitic lesions of the skin.

A valuable addition to the list of methods for applying medicated ointments to the skin has been devised by Unna. His SALVE-MUSLINS

or salve-mulls are strips or bandages of muslin thoroughly impregnated and thickly spread with ointments medicated by almost every desirable substance, from the oxide of zinc to tar, thymol, salicylic acid, and mercury. They are elegantly made, and, when imported to this country, surrounded by impermeable tissue, so as to be quite fresh and sweet when used. They are efficacious, and, as a rule, well liked by patients. The chief objection to their general employment in this country is the expense of importation. The author has used them with great advantage in skin diseases of the exudative class affecting the extremities.

Unna's "PLASTER-MULLS" seem to be less useful. They are plasters thinly spread on gutta-percha cloth, and manufactured with a wide range of medicinal constituents. They serve a good purpose in the protection of parts of the skin exposed to friction.

LANOLIN, or wool-fat, was first introduced as a salve-base by Dr. Oscar Liebreich, of Berlin. It is a peculiar substance obtained from keratinic tissues, and contains cholesterin fat instead of glycerine, with but thirty per cent. of water. It has a bright yellowish color, a distinct odor of the sheep, and is neutral, never, when pure, acid in reaction. The Berlin specimens that first came to this market required the addition of from ten to twenty per cent. of an ordinary fat in order to overcome the consistency of the lanoline. But, in 1886, Prof. Liebreich called attention to a lanolinum purissimum which he had substituted for the former, and which, being free from cholesterin compounds, required no such fatty addition.

This substance seems now to have outlived the period both of extravagant praise and denunciation. It is readily absorbed from the surface of the skin, and, either pure or medicated, may be regarded simply as a useful addition to the bases of ointments for employment upon the skin.

THE OLEATES of zinc, mercury, copper, lead, and other metals have been employed with advantage in the topical treatment of disorders of the skin. Of these, the oleates of mercury and lead are decidedly the most valuable. The latter is represented by Hebra's white diachylon ointment. The oleate of mercury is serviceable in syphilitic, parasitic, and other disorders.

COLLODION and TRAUMATICINE are employed for the purpose of applying a remedy to the skin, and at the same time protecting or contracting the surface to which the application is made. Traumaticine is the name given to a solution of gutta-percha in chloroform, in the proportion of ten per cent. In this way bismuth, cantharides, sulphur, chrysarobin, oxide of zinc, white precipitate, iodine, and other substances may be with advantage applied to the surface, and the action of each definitely limited to the margins of a single patch of disease.

The several varieties of TAR, crude and distilled, together with its derivatives, occupy an important place among efficient topical agents. In general, they seem to exert upon the epidermis a local influence, which extends more deeply as the remedy is continuously applied.

At times, both irritative and inflammatory effects are thus induced; and when absorption from the skin occurs, even systemic intoxication. *Pix liquida*, or the *oleum picis*, is the favorite article of this group with most American physicians; but the *oleum cadini* or oil of juniper, and the *oleum rusci* or oil of birch, are rather more generally employed by experts. The last-named, found in purity and abundance, and to be had at a low price in our own markets, is recommended above the others. In Vienna the distilled oil is preferred; but there is good reason to believe that the crude oil is decidedly more efficacious.

The skill of a physician entrusted with the management of a disease of the skin might almost be measured by his success in the use of tar. He who has not had experience in its employment is urgently advised to select one member of the tar family and learn thoroughly how to apply that, singly and in combination, either in lotion or salve. Properly employed, it will favor involution of lesions, lessening hyperæmia, infiltration, scaling, and discharge. It serves admirably as an antipruritic. As indicated above, it may, however, produce severe inflammation of the skin.

To produce the benign or emollient effects of tar, it is best mixed with some soothing or astringent powder, and with this end in view nothing is better than chalk. Spender's hints¹ for making such an ointment are admirable. Finely levigated chalk is strewed into melted lard in a stone jar, the whole being stirred till it is cold. Then at first the smallest quantity of tar sufficient to make a brownish smear of color is added to the quantity of salve employed for use. This color can be successively deepened at will. Auspitz advises the use of the tars in a pure state, applied in very small quantities with a strong bristle-brush and well rubbed in. In combination with one of the most valuable of all substances for topical use in cutaneous therapeutics, viz., sulphur, tar enjoys a special reputation. The Wilkinson salve modified (q. v.) represents such a combination.

ICHTHYOL, fish-oil, sulpho-ichthyolate of sodium or ammonium, introduced to the profession by Dr. Unna, is the distillate of a bituminous and sulphurous deposit of petrified fishes and marine fossils found in Tyrol. Its chemical formula is $C_{26}H_{36}S_3Na_2O_6$. It has a tarry appearance, odor, and consistency. It is soluble in water, partly so in ether and alcohol, and can be incorporated in any desired proportion with fat, vaseline, and lanolin. It has been used both pure and diluted; and several proprietary articles (plasters, soaps, salves, and medicated cotton) are sold in the market. It has been used both at home and abroad in cases of leprosy, pruritus, acne, sycosis, eczema, psoriasis, and a number of other cutaneous disorders.² It is used in solutions and salves of from ten to twenty per cent. strength. As before stated, it is also administered internally, more

¹ Practitioner, June, 1883, p. 402.

² See Baumann and Schöten: Monatsh. f. Prakt. Derm., 1883. Unna: same journal, 1882; Deut. med. Zeit., 1883. Samml. klin. Vort., 1885; Lorenz; Deut. med. Woch., 1885; Stelwagon and Piffard: Journ. of Cut. and Ven. Dis., 1886; Zeisler: Chicago Med. Journ. and Exam., 1886.

particularly in the management of rheumatism, in doses of from fifteen to twenty drops. It does not seem to have a disturbing effect upon the stomach.

This substance has not yet been employed to an extent sufficient to establish its position firmly as a remedial agent in diseases of the skin. Personal employment of it in a series of different cases, the greater number being of eczema and lupus, led to the impression that it was not superior to tar in a therapeutic sense. It will probably secure a place among the useful articles in this list.

Unpleasant results have been reported as following its application in a single instance (Sinclair). A four-months old infant sank into a state of stupor two hours after its head and limbs were smeared with a salve composed of one part of ichthyol to five of vaseline.

A group of substances which occupy a therapeutical position inferior to the tars, but which serve an important end in the management of cutaneous diseases by the production of similar effects, are, carbolic acid, creasote, salicylic acid, benzol, naphthol, iodol, chrysarobin, pyrogallol, resorcin, and jequirity.

RESORCIN in ointments of the strength of five to twenty per cent. serves as an antipruritic and alterative. Dr. Stelwagon reports an anodyne effect following its use. This same experimenter has modified Ihle's formula by adding a drachm (4.) of resorcin to one to two drachms (4.-8.) of castor-oil, five minims (0.33) of Peruvian balsam and four ounces (128.) of alcohol, for use in alopecia and seborrhœa of the scalp. It is a valuable parasiticide in lotions of the strength of from five to ten per cent.

NAPHTHOL, or β naphthol, as it is termed chemically, first introduced by Kaposi, has fairly retained its place in the list of efficient topical remedies. It is chiefly valuable in scabies, but has also been used in the management of eczema, psoriasis, and other exudative affections. Van Harlingen¹ has found it answer well in seborrhœa of the scalp. Neisser has described renal disorders as resulting from its use in children, but MM. Josias and Nocard² report that in ordinary medicinal doses it is harmless. The fact that the naphthol preparations are odorless and do not stain the skin is to be set down in their favor.

JEQUIRITY (*abrus precatorius*), employed by ophthalmologists for the purpose of inducing artificial inflammation of the conjunctiva, has been used by Dr. Shoemaker³ in the management of lupoid and other ulcers. One part of the cleansed, decorticated, and bruised grains, macerated for twenty-four hours, and reduced by rubbing in a mortar to a smooth paste, was added to sufficient water to make four parts. This emulsion was used for local application.

SULPHUR, employed popularly chiefly as a laxative or for the local treatment of scabies, has also a deserved reputation in cutaneous therapeutics, as an external agent in a wide range of non-parasitic

¹ Amer. Journ. of the Med. Sci., Oct. 1883.

² Ann. de Derm. et de Syph., May, 1885.

³ Lancet, Aug. 1884, p. 185.

disorders. Hebra once regarded it as valueless in eczema, but his opinions on this point are not now generally accepted. The precipitated sulphur is to be preferred to the other compounds of the pharmacopœia. It may be mechanically incorporated with salve-bases or chemically combined with vaseline and other petroleum products, a process by which experiments have led the author to believe its therapeutic value is not increased. It is also applied after mechanical union with various substances as a lotion. It is irritating to the acutely inflamed skin, but much better tolerated in conditions of subacute or chronic exudation than the tars.

MERCURY and its compounds are of value in the local treatment of many disorders of the skin, syphilitic and not syphilitic. Corrosive sublimate as a parasiticide is of great importance in the treatment of several cutaneous disorders due to the presence of bacteria, as, for example, lupus vulgaris. Calomel, the oxides, iodides, and the ammonio-chloride, are chiefly used in the form of ointments, but the black wash, prepared with the mild chloride, is of great value in eczema. Piffard¹ has called attention to the fact that the official ointment of white precipitate is made with pure lard instead of as formerly with lard and wax; and to this change, tending to hasten the absorption of the mercurial, he attributes some late failures with this admirable salve. Disagreeable dermatitis followed by scaling has been reported to follow its use in the strength of forty grains (2.66) to the ounce (32.) by Mr. W. E. Green, of London.²

CHLORAL-CAMPHOR and PHENOL-CAMPHOR have value chiefly as antipruritics. The former is obtained by rubbing together the hydrate of chloral and gum-camphor (Bulkley) till they form a clear liquid of pungent odor. Phenol-camphor is made by gradually adding camphor to melted crystals of carbolic acid, a colorless liquid resulting having the fragrant odor of camphor without that of the acid. It is a useful local anæsthetic agent, being insoluble in water, but freely soluble in chloroform, ether, and alcohol.

Many AGENTS are employed upon the surface of the integument to produce in various degrees a CAUSTIC or DESTRUCTIVE effect. Among these may be named the thermo-cautery (Paquelin knife), galvanocaustic apparatus, the mineral acids and alkalies, ethylate of sodium, arsenic, chloride of zinc, several mercurial compounds, acid nitrate of mercury, bichloride of mercury, chloride of antimony, sulphate of copper, and nitrate of silver. Several of these substances in weak solution are employed as milder agents for the production of irritative, or even various inflammatory, effects. To the latter class should be added iodine in tincture, chloroform, tartar emetic, croton oil, and cantharides.

These destructive effects are of advantage in the treatment of disorders of the integument due to parasites, either animal or vegetable. Of those employed for this purpose, and not mentioned above, may be named petroleum and staphysagria, for the destruction of lice;

¹ Journ. of Cut. and Ven. Dis., Oct. 1866.

² Brit. Med. Journ., 1885.

sulphur, styrax, and balsam of Peru, for the destruction of acari; sulphur and its compounds, and a number of derivatives from tar, for the destruction of vegetable parasites.

A variety of SURGICAL and other APPLIANCES are found useful as adjuvants in the treatment of skin diseases. They may be employed to support, protect, or compress the surface, or merely to aid in the retention of dressings or external medicaments. Thus the ordinary roller bandage is applicable to many portions of the body; the suspender, or suspensory bag, over the scrotum; elastic or inelastic stockings to the feet and legs; kid, rubber, and thread gloves to the feet and fingers; and various skull-caps, face-masks, and mittens are employed in the case of infants and children to protect affected surfaces from the dangers of scratching.

It is an axiom in dermatology that a salve is worth far more to the patient when it is spread on muslin, and thus retained in contact with the skin, than when it is merely smeared or rubbed over the surface. It is this important feature which has doubtless contributed so largely to the reputation of Unna's salben-mülle, or salve-muslins. In order to secure the retention of such salve-spread muslins in contact with the surface, the common muslin roller, which exercises more or less compression, is inferior to the light and more pervious cheese-cloth bandage. This is especially true when the dressing is made by the patient, who is, in general, far less expert than either the trained nurse or the physician.

Apart from the surgical apparatus required for ablation of tumors or other severe operations, a number of instruments are required for the daily use of the dermatologist. Among these may be named:

A set of variously sized dermal curettes. These sharp-edged spoons are for erosion of the surface, and should consequently have in each a fenestrum large enough to permit the escape of all collected substances from the floor of the spoon.

Epilating forceps with easy springs and smooth blades meeting in perfect apposition.

A set of Piffard's comedone extractors, provided at each extremity with a differently sized, minute, spoon-shaped, and perforated bowl, the convex surface of which is pressed over the comedo with the orifice immediately over the black head of the plug. This is a great improvement over the old-fashioned comedo extractor shaped like a watch-key, and the discomfort to the patient is by its use greatly reduced.

A set of half-inch and four-inch lenses for examining the surface of the skin.

Needle-holders with light handles for firmly grasping needles for use in opening pustules, etc. The latter should be, some of them flat with a double-cutting edge, others rounded neatly on an emery-wheel, and all of them very carefully disinfected if used more than once. Too many precautions cannot be taken in the practice of

dermatology, with respect to the disinfection of all instruments made to penetrate the skin.

FIG. 18.



Irido-platinum needle.

FIG. 19.



Miliun needle.

FIG. 20.



Scarifying spud.

FIG. 21.



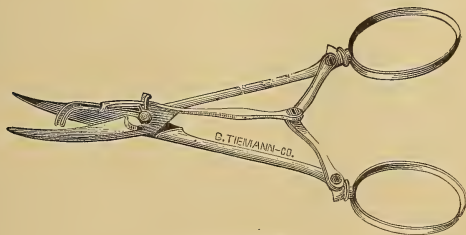
Epilating forceps.

FIG. 22.



Piffard's grappling forceps.

FIG. 23.



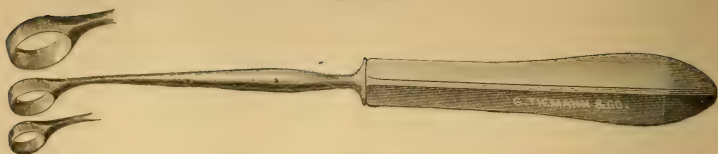
Skin grafting scissors.

FIG. 24.



Piffard's cutisector.

FIG. 25.



Dermal curettes.

FIG. 26.



Hess's glass pleximeter. For observing the skin under pressure.

FIG. 27.



Piffard's modification of Unna's comedo extractor.

FIG. 28.

 $\frac{3}{4}$ OF REAL SIZE.

Keyes' cutaneous punch.

Probes, exploring needles, fine dressing-forceps, delicate straight and curved scissors, and other instruments from the ordinary pocket-case of the surgeon, are indispensable. The instruments required for use in connection with the galvanic battery are enumerated in the chapter on hirsuties.

For detection of different degrees of temperature at the surface, the author has employed for several years the thermo-electric differential calorimeter. The thermopiles of this apparatus act upon a galvanometer needle suspended by a single filament of the cocoon of the silk-worm, and it is thus as sensitive as is required for the most delicate observations.

VII.

CLASSIFICATION.

THE numerous attempts which have been made to classify diseases of the skin according to their nature and relations, have been a response to the generally recognized demand for a systematic arrangement of all scientific facts. As regards dermatology, not only have

these attempts been numerous and based upon different principles, but the results which they have accomplished have been in the highest degree divergent. No single classification yet devised has hitherto secured general acceptance. While it is certain that no one of them has been perfect and that each has exhibited defects, it is equally true that of the larger number each has possessed some merit of its own. No perfectly satisfactory classification of cutaneous diseases can be generally accepted till the knowledge of diseases of the skin has been greatly enlarged.

One of the most satisfactory of the systems thus far proposed is that of Hebra. By it cutaneous disorders are arranged in the following nine classes :

CLASS	I. Disorders of Secretion.
CLASS	II. Hyperæmias.
CLASS	III. Exudations.
CLASS	IV. Hemorrhages.
CLASS	V. Hypertrophies.
CLASS	VI. Atrophies.
CLASS	VII. New Growths.
CLASS	VIII. Neuroses.
CLASS	IX. Parasites.

Since this classification was devised by Hebra, none has been proposed which compares in ingenuity with the arrangement by Auspitz of the diseases of the skin into natural groups. The principle of this classification is to place together those diseases and groups of diseases which present a clinical unity ; the general pathological process being the predominant characteristic for selection, and individual pathological characteristics, such as symptoms, localization, anatomical peculiarities, etc., are only brought thus predominantly forward when coinciding with the real nature of the class, group, or disease in question.¹

Auspitz's nine classes are : 1. Simple Inflammatory Dermatoses ; 2. Angioneurotic Dermatoses ; 3. Neuritic Dermatoses ; 4. Stasis Dermatoses ; 5. Hæmorrhagic Dermatoses ; 6. Idioneuroses ; 7. Epidermidoses ; 8. Chorio-Blastoses ; 9. Dermatomycoses.

Under these classes, by the aid of divisions and subdivisions, an elaborate scheme is presented, which embraces fully not only all cutaneous diseases, but all pathological processes recognized in the skin. This system, accepted with modifications by Hans Hebra,² has unquestionably been followed by a greater advance in the nosology of cutaneous medicine than any of those which have been proposed since Hebra first offered his.³

¹ System d. Hautkrankheiten. Wien, 1881.

² Die Krankh. Veränderung, der Haut. Braunschweig, 1884.

³ An exceedingly ingenious and comprehensive scheme of classification of diseases of the skin, embracing most of the principles upon which the best of previous classifications were based, was presented by Dr. E. B. Bronson, of New York, at the meeting of the American Dermatological Association, in August, 1887.

Auspitz's classification is, however, open to various objections on the part of the student of dermatology. It is elaborated to the extent of setting the names of some diseases in more than one family; and is, hence, confusing to the beginner. It is better adapted to the needs of the expert than of the young student, for it introduces to the study rather of morbid processes in the skin than of the complexus of those processes which are recognized in disease.

Whether the principle of classification be anatomical, etiological, or pathological; whether it be based on the processes actually occurring in the skin, or on those deeper factors and forces operating centrifugally upon the skin, and on which that organ depends for all its functions and even its existence; whether it proceed etilogically from the causes which are immediate, or those which are remote, it is easy to see that, as knowledge in each of these directions enlarges, the exact position of any one disease in any given classification must be rendered insecure. Never was this observation more suggestive than at this day, when the pathogeny of numerous skin disorders is revealed in the light thrown on the subject by the discovery of new and hitherto unknown inferior organisms.

Indeed, to this last cause, awaking grave doubts as to the precision of much that was once esteemed fact, may be attributed the declining interest in the general subject of classification of diseases of the skin. The earnest discussion of this theme has been practically deferred by common consent to a date when the questions thus suggested can be more satisfactorily answered. Several recent writers have actually contented themselves with an alphabetical arrangement of the names of skin diseases,¹ as an order useful simply for reference.

The classification observed in this edition of this work is that adopted by the American Dermatological Association, August 29, 1878, and revised by the same body, August 28, 1884. It is that of Hebra modified. Its claims on American students cannot be ignored. It has been presented and adopted by the recognized exponents of Dermatology in America. It has been made for nearly ten years the basis of dermatological study in some of the leading medical schools of this country. It is not claimed for it that it is a perfect system, but one in which the names of many disorders have merely a provisional position. It will, without question, be revised from time to time, by the body which first gave it to the world, and which by its aid has fostered the study of cutaneous medicine in America as it was never fostered before. It is employed here as a valuable, convenient, and accepted nosological scheme, in which, it is distinctly admitted, a rearrangement of many terms is demanded from year to year by the advances of science.

¹ Van Harlingen: *Handbook of the Diagnosis and Treatment of Skin Diseases*. Phila., 1884.

CLASSIFICATION OF DISEASES OF THE SKIN ADOPTED BY
THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Class I. Disorders of the Glands.

1. OF THE SWEAT GLANDS.

Hyperidrosis.
Sudamen.
Anidrosis.
Bromidrosis.
Chromidrosis.
Uridrosis.

2. OF THE SEBACEOUS GLANDS.

Seborrhœa:
 a. oleosa.
 b. sicca.
Comedo.
Cyst:
 a. Milium.
 b. Steatoma.
Asteatosis.

Class II. Inflammations.

Exanthemata.
Erythema simplex.
Erythema multiforme:
 a. papulosum.
 b. bullosum.
 c. nodosum.
Urticaria.
 pigmentosa.
Dermatitis:¹
 a. traumatica.
 b. venenata.
 c. calorica.
 d. medicamentosa.
 e. gangrænosa.
Erysipelas.
Furunculus.
Anthrax.
Phlegmona diffusa.
Pustula maligna.
Herpes simplex.
Herpes zoster.
Dermatitis herpetiformis.
Psoriasis.
Pityriasis maculata et circinata.
Dermatitis exfoliativa.
Pityriasis rubra.
Lichen:
 a. planus.
 b. ruber.
Eczema:
 a. erythematosum.
 b. papulosum.
 c. vesiculosum.
 d. madidans.

¹ Indicating affections of this class not properly included under other titles.

e. pustulosum.
f. rubrum.
g. squamosum.
Prurigo.
Acne.
Acne rosacea.
Sycosis.
Impetigo.
Impetigo contagiosa.
Impetigo herpetiformis.
Ecthyma.
Pemphigus.

Class III. Hemorrhages.

Purpura:
 a. simplex.
 b. hæmorrhagica.

Class IV. Hypertrophies.

1. OF PIGMENT.

Lentigo.
Chloasma.

2. OF EPIDERMAL AND PAPIL-
LARY LAYERS.

Keratosis:
 a. pilaris.
 b. senilis.
Molluscum epitheliale.
Callositas.
Clavus.
Cornu cutaneum.
Verruca.
Verruca necrogenica.
Nævus pigmentosus.
Xerosis.
Ichthyosis.
Onychauxis.
Hypertrichosis.

3. OF CONNECTIVE TISSUE.

Sclerema neonatorum.
Scleroderma.
Morphœa.
Elephantiasis.
Rosacea:
 a. erythematosa.
 b. hypertrophica.
Frambœsia.

Class V. Atrophies.

1. OF PIGMENT.

Leucoderma.
Albinismus.
Vitiligo.
Canities.

2. OF HAIR.

Alopecia.

- Alopecia furfuracea.
- Alopecia areata.
- Atrophia pilorum propria.
- Trichorexis nodosa.
- 3. OF NAIL.
 - Atrophia unguis.
- 4. OF CUTIS.
 - Atrophia senilis.
 - Atrophia maculosa et striata.

Class VI. New Growths.

- 1. OF CONNECTIVE TISSUE.
 - Keloid.
 - Cicatrix.
 - Fibroma.
 - Neuroma.
 - Xanthoma.
- 2. OF MUSCULAR TISSUE.
 - Myoma.
- 3. OF VESSELS.
 - Angioma.
 - Angioma pigmentosum et atrophicum.
 - Angioma cavernosum.
 - Lymphangioma.
- 4.
 - Rhino-scleroma.
 - Lupus erythematosus.
 - Lupus vulgaris.
 - Serofuloderma.
 - Syphiloderma:

- a.* erythematosum.
- b.* papulosum.
- c.* pustulosum.
- d.* tuberculosum.
- e.* gummatosum.
- Lepra:
 - a.* tuberosa.
 - b.* maculosa.
 - c.* anæsthetica.
- Carcinoma.
- Sarcoma.

Class VII. Neuroses.

- Hyperæsthesia:
 - a.* pruritus.
 - b.* dermatalgia.
- Anæsthesia.

Class VIII. Parasitic Affections.

- 1. VEGETABLE.
 - Tinea favosa.
 - Tinea trichophytina:
 - a.* circinata.
 - b.* tonsurans.
 - c.* sycosis.
 - Tinea versicolor.
- 2. ANIMAL.
 - Scabies.
 - Pediculosis capillitii.
 - Pediculosis corporis.
 - Pediculosis pubis.

DISEASES OF THE SKIN.

CLASS I.

DISORDERS OF THE GLANDS.

IN this class of disorders are grouped all the functional disorders of the sweat or coil-glands, the sweat pores, and the sebaceous glands. These disorders may be betrayed in quantitative or qualitative changes in the secretion, or in retention of the latter in the whole or in a part of the secretory apparatus. When a disease of the skin ceases to be purely functional in type, and is accompanied by an exudative process, glandular or periglandular in situation, such disease is properly classed with another and in this particular related group of affections.

1. Of the Sweat Glands.

Hyperidrosis.

Gr. ὑπερ, in excess; ὕδωρ, water.

Hyperidrosis is an exaggerated quantitative effusion of sweat, the secretion accumulating in visible drops upon the surface of the skin.

Symptoms. — This condition, also termed Idrosis, Hydrosis, Ephidrosis, Sudatoria, Polyidrosis, and Hyperhidrosis, may be physiological as the result of active exertion in a medium of high temperature; or it may be pathological in character, and in the latter case be either general or partial.

General sweating to a pathological extent occurs chiefly in the obese, but also in those who are the subjects of constitutional disease (phthisis, the various febrile disorders, etc.). It is the fertile source of the various forms of intertrigo, sudamina, and miliaria. Local hyperidrosis is the exaggerated quantitative effusion of sweat limited to certain definite portions of the skin, as the palms, soles, dorsa of the hands and feet, the interdigital spaces, the genitals, the axillæ, and temples. In such cases the secretion occurs moderately or greatly in excess, varying in this respect somewhat in different degrees of temperature,

and of rapidity of the circulation ; is occasionally, but not commonly, accompanied by fetor ; and always occurs to a marked extent. It may involve one or both sides of the body, being generally symmetrical at the extremities, and asymmetrical upon portions of the face.

Its topical expression may be studied in the hands, which are continually moistened, clammy, or dripping with fluid within a brief time after the most careful drying of the parts. In the case of a woman, the instincts of whose sex prompt her to take such precautions, the dress is constantly protected from contact with the macerated palms by a handkerchief or similar article which is always in readiness. The disadvantages thus arising in individuals of both sexes who are engaged as tradespeople, artists, hand workers, etc., can be readily estimated. In women of social position, no small complaint is made of the disagreeable result produced after wearing kid gloves for even a short time, the material of which is soon soiled by its complete saturation with the secretion from the skin.

With and without this local excess, occurs the hyperidrosis of the feet, aggravated by the mechanical force of gravity and the need of constant covering. The stockings and the leather of the boots, shoes, or gaiters are saturated with the secretion, and become rapidly subject to chemical alteration. There is usually an offensive odor of the region, originating partly in the primary fetor of the secretions themselves, and partly in the subsequent chemical decomposition of the latter, rapidly progressing under the influence of the soiled and often stinking investments of the feet.

The integument, constantly macerated, may become both painful and tender ; very rarely there is vesiculation or exfoliation of patches of sodden epidermis. When the genitals are involved, especially in the male, erythema and intertrigo are the frequent results.

Etiology.—The disease may be in rare cases congenital. In others it is associated in one person with disorders not apparently related to it. The author has at present in hospital a woman, twenty-four years of age, affected with severe tylosis of the feet, from which are exfoliated extensive lamellated casts of the soles. She also has typical hyperidrosis of the hands.

In no portion of the nervous system has a localized centre for excito-sudoral or inhibitory effects been recognized. Traumatism, gliomata, gummata, scleroses, and other lesions affecting the cerebrum, medulla, cord, ganglia, and trunks of the sympathetic nervous system have been followed by local and general hyperidrosis, but they have all repeatedly failed to induce such morbid sudoral symptoms, while a fit of anger or sudden fright has been as conspicuously effective as any. In short, the predominant influence of the nervous system in an etiological sense must be admitted here as in physiological sweating : and the sympathetic branches of that system must be assigned the greater influence for the most cases. A paralysis or paresis of the sympathetic is held to explain the occasional coincidence of pulmonary and cardiac disorders, with either general or partial

excessive sweating. Compression of the sympathetic by adenomata, aneurisms, carcinomata, etc., has been followed by marked symptoms of this disorder. The disease is encountered in individuals of both sexes, and in all ages and degrees of general health, as also in those who are and those who are not careful as to cleanliness. There is reason to believe that the facial asymmetrical hyperidroses associated with migraine, neuralgias, hemicrania, etc., are etiologically and pathologically distinct from the similar symmetrical affections of the hands and feet. The latter certainly occur with conspicuous frequency in young women who are the subjects of hysteria, chloro-anæmia, some form of dysmenorrhœa, or cardiac trouble. In one young woman under the author's observation, there was an habitual pulse of fifty-five to the minute without diastole, the patient being in other respects well.

Pathology.—Robinson, who has examined a number of sections from the palm of the hand, failed to detect any abnormal feature either in the glands or the epithelium. The disorder is to be regarded as purely functional; and any anatomical changes in the coil-glands or sweat-pores are probably accidents of such derangement of function.

Treatment.—When universal, hyperidrosis is to be treated internally by the aid of such remedies as are indicated by the general condition of the patient. The various ferruginous tonics, mineral acids, arsenic, strychnia, quinine (the latter particularly when, as is often the case, a malarial affection is responsible for the disorder), and ergot, with both belladonna and atropine, are all of unquestionable value. Even though but temporarily serviceable, belladonna and atropine are well used at the outset of most cases. Aconite, jaborandi and pilocarpine, white agaric (agaricine is recommended in doses of one-sixth of a grain (0.011), repeated as required), carbolic and salicylic acids may be named as in the second rank.

External treatment is often promptly efficacious, and can rarely be neglected in any case. The simplest method is by wiping, not washing, the surface until it is dry, and applying the dusting-powders, such as lycopodium, talc, salicylic acid, boric acid, bismuth, magnesia, hydrate of chloral one part to five or six of starch, and starch itself, the chief objection to the latter being its tendency to form cakes or rolls after its union with the sweat. Alternately with these, or in lieu of them, baths or lotions may be employed, aqueous or alcoholic, and medicated with corrosive sublimate, tannic acid, zinc sulphate, alum, permanganate of potassium, or the sea salt now sold in packages for domestic use. Dr. G. H. Fox¹ advises a lotion containing one part of quinine to one hundred of alcohol. Van Harlingen recommends the use of juniper tar or carbolic acid soap with the bath, as alone sufficient to relieve some cases.

For hyperidrosis of the feet, the treatment by the method of

¹ Journ. of Cutan. and Ven. Dis., 1885, p. 24

Hebra has, deservedly, high repute. It consists in neatly and completely enveloping the entire foot and toes separately, after thorough washing and drying, in strips of cotton cloth over which is spread to the thickness of the blade of a common knife, the unguentum diachyli albi elsewhere described. This latter is made by boiling one part of the best litharge with about four parts of pure olive oil, to which a little water is added while the materials are stirred together over a slow fire. The parts are well bandaged, and the patient either remains subsequently at rest or pursues his vocation, wearing over the feet, shoes and stockings which have not been previously used. In twenty-four hours, the feet are redressed without washing, after dry rubbing with charpie and a dusting powder. This is repeated daily for ten to twenty days, after which a dusting powder may be substituted for the local dressing. A parchment-like desquamation of the epidermis in thick, yellowish-brown lamellæ occurs, beneath which an epidermis is formed, new and at first tender, but apparently normal. When the latter has lost its tenderness, the feet are for the first time washed with water. In case of failure, the routine of treatment is, as often as necessary, again carried out. It is scarcely necessary to add that no ill effects are known to have resulted from the therapeutic measures adopted for checking a local hyperidrosis.

For the diachylon salve may be substituted tar, ichthyol, or naphthol ointments. Fredericq employs finely pulverized tartaric acid, applied at first with some caution, and always in small quantities. Stewart first bathes the feet in hot water and then soaks them for a few moments, and once only, in a solution of the permanganate of potassium, four to six grains to the ounce, (0.266–0.4 to 32.), after which, the plaster selected for use may be applied as directed above. Legoux orders pediluvia of tar water twice daily, for three days, followed by a painting of the feet with a solution of the perchloride of iron. Morrow¹ recommends foot-baths in the extract of *pinus canadensis*, followed by the application of boric acid, or salicylic acid, mixed with lycopodium. Lastly, Brandon, experimenting on the permeability of the skin to ethers and gases, claims to have solved the problem of local treatment with a “liquor anti-hidrorrhoicus,” prepared from the chloric ethers.

Prognosis.—The future of any case of hyperidrosis is uncertain. The disease, whether local or general, may spontaneously disappear, recur, be promptly amenable to treatment, or prove obstinate to all therapy. Dr. Myrtle² reports the case of a male patient, seventy-seven years old, who sweat to death after repeated recurrences of severe hyperidrosis, and after temporary relief from the use of Fowler’s solution.

¹ See his résumé of this subject in the *Journ. of Cutan. and Ven. Dis.*, vol. v. p. 68.

² *Medical Press*, Feb. 25, 1886.

Sudamen.

Lat. *sudor*, sweat.

Sudamina are discrete, superficially seated, millet-seed sized and larger, translucent vesicles, resembling seed-pearls.

Symptoms.—In this disorder, also termed *Miliaria Crystallina*, the lesions are thickly agglomerated, but discrete, transitory, and translucent, pin-point sized vesicles, resembling dew-drops or seed-pearls, upon the surface of the skin, often requiring the touch to define their real character. They are usually limited to certain regions of the body, as the trunk, and here more generally upon the face and sides of the belly, and the iliac regions, though they may occur upon any part. Their course is rapid, both in evolution and involution, and their sequelæ are exceedingly delicate desquamative flakes, the thin roof-wall which originally covered the sweat-drops having been lifted from the superficial stratum of the horny layer of the epidermis. They contain each a droplet of sweat, which is removed by evaporation. They are usually preceded by an attack of pruritus, and may follow the hyperidrosis of systemic debility, enteric and continued fevers, phthisis, inflammatory rheumatism, pneumonia, and other asthenic conditions. They may also result from violent exercise, the elevated temperature of the summer season, flannel underclothing, vapor baths, and the application of wet and hot cloths to the surface of the skin.

The lesions are the result of the accumulation of sweat between the most superficial layers of the stratum corneum, in high temperatures of the body, or of the medium by which it is surrounded, and usually in states of adynamia. They may hence occur at all ages, and in both sexes.

Robinson states that they form rapidly on the face of laundresses, and in women from the thirty-fifth to the fiftieth year of life, where also they are isolated and disappear slowly.

Three forms of sudamina have been described: (a), sudamina alba; (b), sudamina rubra; and, (c), sudamina crystallina. The last-named is the only form to which the term sudamen is properly applied, since it alone of the three designates a purely functional derangement of the sweat-secreting apparatus.

The first term, sudamina alba (*miliaria alba*), is applied to lesions where there is maceration of the vesicular wall and the contents become opalescent. This is rare. The second term, sudamina rubra (*miliaria rubra*, *lichen tropicus*, "prickly heat"), is applied to inflammatory lesions which may accompany profuse sweating. These are numerous pin-point to pin-head sized vesicles surrounded by a reddish halo, or papules of the same dimensions, or the two lesions commingled, almost invariably accompanied by hyperidrosis, though the latter may be absent in high temperatures. The marked tingling, pricking, and burning sensations by which they are accom-

panied, are often in the highest degree distressing, and may solicit rubbing of the affected part, though the scratching elicited by severe pruritus is not common. Minute crusts may form after vesicular rupture. The attack may be mild or quite severe, and last for a few days, or for as many weeks or months, as the result of continuous aggravation, or of the production of new crops of lesions after each recurrence of the cause. It is not rarely complicated in obese individuals, by all varieties of intertrigo and eczema.

The sudamina crystallina are, however, the sole lesions which may be properly considered in this class of affections. They are always free from all inflammatory symptoms, presenting a limpid, dew-drop-like aspect that is characteristic.

Etiology.—The disease is induced by excessive sweating; often in consequence of an elevated temperature; also, however, as a result of a systemic asthenia, as indicated above.

Pathology.—Dr. Robinson has studied the anatomy of the sudamen with special care. Its contents are pure sweat without admixture of lymphoid corpuscles. The fluid collects between the laminæ of the deeper part of the corneous layer. The author supposes a rupture of the wall of the sweat-duct, but with our present knowledge of the anatomy of this part of the skin, we can see in his illustrations the obliterations merely of the sweat-pore by a sudden effusion of watery fluids toward the epidermis, which pass with moderate pressure through the wall-less sides of the pore into the spaces between the epithelial cells, where a chamber is readily formed.

This is made clearer by the author's exact description of actual dilatation of the duct of the coil-gland, where there is "not an escape of sweat into the neighboring tissue," which he recognized in the corium. The sudamina exhibiting this peculiarity appear on the face, chiefly of women.

Diagnosis.—No difficulty can arise in making a diagnosis, if the peculiar characters of the sudamen be kept in view. All pustular lesions have different contents; all bullous lesions are larger; or seated on an engorged base; or lack the limpid clearness of the sudamen, because, however transparent the contents, they are mostly covered by a thicker and less transparent roof. The halo about the lesions of miliaria rubra, or their rosy-pinkish shade will determine their character. In varicella the lesions are chambered.

Treatment.—Only the simplest treatment is required. The lesions may be dusted with one or several of the dusting powders, such as starch, lycopodium, or boric acid, named in the chapter on General Treatment of Cutaneous Diseases. The general treatment is that indicated by the condition of the patient.

MILIARY FEVER, or the *suetie miliaire* of the French, is an epidemic disorder, accompanied by sweating and a cutaneous exanthem. Pineau¹ gives a description of the disease as it occurred in epidemic form in the island of Oléron, where, of one thousand patients

¹ Archiv. Génér. de Méd., Jan 1882, p. 25,

affected, between one hundred and fifty and two hundred perished. The eruption appeared in the form of hyperæmic maculæ, disappearing under pressure, after which there rapidly formed myriads of reddish or whitish, grouped, unequally sized, and acuminate papules, rising from a whitish and macerated surface. Among these were interspersed lesions of sudamina. The region of the face was not spared, and the conjunctivæ were occasionally affected. In the course of from two to four days, pin-head to bean-sized, varioliform but non-umbilicated pustules formed in the site of some of the papules, the contents of which disappeared by resorption, the final lesions presented being large, flat, reddish papules, the skin, of the face particularly, becoming generally reddened and swollen. In the course of from ten to twelve days, general desquamation ensued with large palmar and plantar losses. Relapses occurred in some cases with general redness of the surface, or with crops of reddish plaques, or yet again with the occurrence of furuncles. The sensations were those of myriads of needles thrust into the skin. The exanthem was accompanied in some cases by fever, and in others not. In fatal cases death resulted from exhaustion.

Geber, however, and other writers believe that the lesions described are not peculiar to any special disease; and deny the possibility of an independent miliary fever.

Anidrosis.

Gr. *α*, privitive; *ἵδωρ*, water.

This name is properly applied to those morbid conditions where no sweat is secreted from the surface of the body. The word Hypohidrosis is more exactly used to designate a relative, general or partial decrease in the quantity of the sudoral fluid. The former term is, however, often used to include the latter.

Complete anidrosis occurs naturally only when the sudoral apparatus has been involved in destructive or other changes in the skin (scars, atrophy, etc.).

Diminution in the quantity of sweat excreted, or its complete suppression, whether general or local, is a symptom of several disorders, but as a separate cutaneous affection has no existence. It is sufficiently common in many cutaneous diseases, as, for example, ichthyosis, psoriasis, and some forms of eczema. But in these, the symptomatic character of the anomaly is illustrated by the well-known fact that when the skin is relieved of these cutaneous troubles, the function of sweat secretion is restored. Similarly, in neuralgias and certain forms of paralysis, a circumscribed and temporary anidrosis may be the local expression of the nervous disturbance, precisely as in the case of the asymmetrical hyperidroses. Lastly, there are individuals exhibiting the idiosyncrasy of sweating either not at all or quite imperceptibly in elevated temperatures, phenomena which

should be ascribed rather to peculiarities in the equilibrium of the heat-exchanging forces, than to congenital deficiency of the sweat-glands.

According to Geber, Strauss and Bloch regard the occurrence of hypohidrosis and anidrosis as differential diagnostic symptoms of diffuse myelitis and poliomyelitis as against cerebral paralysis.

Treatment.—The measures capable of stimulating the sweat secretion are: the ingestion of water in quantity by the mouth, the external application of heat in a dry or moist atmosphere, and the use of jaborandi or pilocarpine by the mouth or hypodermatic injection. In the anidrosis accompanying cutaneous disease, the indication is always primarily for the relief of the latter.

Bromidrosis.

Gr. βρώμος, a stench; ἵδωρ, water.

This disorder is also termed Bromhidrosis, Osmidrosis, and fetid or stinking sweat.

Symptoms.—Here the perspiration is effused in such a state that it can be immediately perceived to possess an unusual odor, or, as Hebra taught was the case with the majority of patients, to be rapidly changed to that condition. It is often associated with hyperidrosis, or may occur quite independently of the latter, and like the latter also be either general or partial. The odor may be either agreeable or disagreeable, having been in various cases compared to that of several flowers and fruits, as well as to that of various stench-emitting animals. In this respect the sweat presents a striking analogy to the urine, with which it sustains a close and well-recognized physiological relation.

General bromidrosis may be physiological, as in the case of individuals of the African race, or in those of dark skins who are profusely sweating during labor or in exalted temperatures. General pathological bromidrosis is rare. The odors emanating from the person in ulcerating syphilodermata, smallpox, and other general disorders, may, in certain cases, be associated with the sweat secretion, but in others doubtless are connected with the decomposition of pathological products of the inflammatory process.

The local varieties of bromidrosis affect the regions in which the sweat is oftenest secreted in excess, and its immediate evaporation prevented, as in the axillæ, groins, feet, ano-genital, inter- and inframammary regions. In a qualitative sense, every degree of odorousness is noted, from that which is merely slightly agreeable or offensive, to the most intolerable stench. When complicated by a seborrhœa in situations where the parts are not only warm, moist, and covered by clothing, but also subjected to friction and long uncleansed, the most intolerable and nauseous fetor is perceived.

Sweat may be effused in a normal condition, upon and within the articles of clothing worn, and subsequently generate a stench by chemical changes both in the clothing, and the fluid by which that

clothing is saturated. This should never be forgotten in the practical management of any case.

Treatment.—The treatment of bromidrosis is, in general, that of hyperidrosis already described. Thin¹ has successfully employed stockings and cork soles dried thoroughly, after saturation for hours in a jar containing a solution of boric acid. The efficacy of this, he ascribes to the fact that the odor is the result of the development in the secretions of the *bacterium fœtidum*. An ointment is also employed by him for similar purposes, produced by making a solution of the acid in glycerine, and incorporating it with a fatty basis of white wax and almond oil, making thus a “glycerated cream of boric acid.” Armingaud, of the French Academy, has reported excellent results following the subcutaneous injection of three grains (0.20) of the nitrate of pilocarpine, eight of which operations were successful in reducing the abnormal sweating fetor. Clement Hawkins² finely triturates fifteen grains (1.) of the red oxide of lead, and to this adds gradually one ounce (32.) of Goulard’s extract. This is used as a lotion following a nightly foot-bath containing an ounce (32.) of alum.

Fox (l. c.) advises a one per cent. solution of chloral, or potassium permanganate as a topical application.

Internally the sodium salicylate has been employed with success in five grain (0.33) doses.

Chromidrosis.

Gr. χρωμα, color; ὕδωρ, water.

By this term is indicated the condition in which effused sweat exhibits an abnormal color, yellowish, reddish, greenish, or blackish. The term Cyanhidrosis has been employed to indicate blue sweating.

In these cases there has been usually a copious secretion of fluid. Authors have variously attributed the color to the presence of compounds of phosphorus, iron, cyanogen, indican, Prussian blue, hæmatin, chromogen, and even to parasitic vegetations upon the surface. Women, much more often than men, exhibit the free deposit of pigment upon the skin, and, in view of the admitted rarity of chromidrosis, the suspicion arises that in some of the cases reported, there was free pigmentation of the surface by which the fluid exuded was immediately stained or colored. Duhring reports a single case of red sweating in a vigorous male patient. Usually, however, the phenomena occur in persons who betray some evidence of impairment of other organs than the skin, or who are debilitated in general health, thus furnishing an indication for their treatment.

Babesi³ of Pesth, reports some interesting cases of this disorder, which appear to have been produced by the presence of bacteria. In four patients, three of them women, there was considerable pruritus with pale red to blood-red sweat; in one, the skin and hairs were

¹ Practitioner, December, 1881, p. 2101.

² Brit. Med. Journ., May 7, 1881.

³ Lancet, 1862.

reddened. The axillæ were the source of this colored perspiration. In all the cases microscopical examination revealed similar changes.

The hairs of the axillæ were thin, pale-red, brittle; and surrounded with a colloid-looking, rusty, or bright-red sheath, in places of considerable thickness and having a rough surface. It consisted of red masses, presenting a radiating striation, more or less confluent, apparently proceeding from fibres of the cortex of the hair, or from some broken part of its surface. The radiating striation was found to be due to the aggregation of round or ovoid bacteria, scarcely a micro-millimetre in diameter, which were united in zoöglœa masses by a reddish, intermediate substance. Nodular swellings on the hair were produced by the infiltration of the organism between the separated fibrils. The roots of the hair were free from bacteria. The red tint of the sweat was found to depend upon numerous roundish masses of zoöglœa.

T. C. Fox¹ also has reported two cases in which a deep bluish-black pigment was exuded upon the skin of the circum-orbital region. The amorphous granules were found insoluble in almost all hot or cold reagents, but displayed a deep blue color when moistened with glycerine, and a purplish hue when dissolved in hot sulphuric acid.

The hypothesis, that certain cases described as chromidrosis are really instances of mechanical washing of pigment to the surface in the profuse sweating of the debilitated, is strengthened by the phenomena of simultaneous hair coloration. Thus, Prentiss² reports the case of a young woman affected with acute cystitis and passing purulent urine, whose hair, under the influence of profuse sweating induced by the action of pilocarpine, changed speedily from a light blond to a nearly jet-black hue. At the meeting of the American Dermatological Association, in 1881, the author exhibited hairs of a middle-aged man which had changed in a night from a grayish-white to a greenish and yellowish-brown hue; and in commenting upon these, Dr. White, of Boston, stated that he had observed several similar cases of hair coloration as the result of profuse sweats.

In the year 1884, this same observer reported to the Association the case of a workman in a sugar refinery whose sweat from the left side of the body was of a bright yellow color for several months, and where, though sought for, no bacteria were discovered.

In a case observed by Bergmann, a mycelium was recognized which was subsequently cultivated on paste. Eberth has recognized bacteria in both normal and yellow sweat.

Le Roy de Méricourt, first to name this disorder,³ has also⁴ described a case of rosy sweating in an infant.

Féréol believes that in these cases there is actually an absence of sweat and prefers to call the disorder chromocrinia.

In all cases, before accepting statements of patients as to the exist-

¹ Med. Press and Circular, Jan. 1, 1881.

² Arch. gén. de Méd., Nov. 1857.

³ Phila. Med. Times, July 2, 1881.

⁴ La France Médic., 1884.

ence of symptoms of this character, it is needful to eliminate the possibilities of deceit and accident. Coloring matters received upon the hands may be, either in wilfulness or ignorance, transferred to the surface of the body.

The treatment is that of the general condition of the patient exhibiting these symptoms.

Uridrosis.

Gr. οὔρον, urine; ὕδωρ, water.

While a small amount of urea is to be recognized in normal sweat, it may, under peculiar conditions, be increased, and, together with urinary salts, deposited upon the skin surface after evaporation of the exuded fluid. Such symptoms have usually occurred either as the result of grave constitutional affections, such as cholera, or of organic renal disease, accompanied by anæmia; or of the ingestion of jaborandi. In a few cases, the symptoms have been presented in individuals who were apparently in good health. The salts of the urine appeared upon the skins of these patients in the form of minute lamellæ, or a fine powder of whitish color and crystalline aspect. In some cases reported the symptoms have been noted to precede by a few days a fatal issue.

The constantly adjusted equilibrium between the sweat and the urinary excretion would explain, for cases of a mild type, temporary augmentation in the urea formed in the sweat of unusually free diaphoresis. Geber supposes that decomposition products, such as the carbonate of ammonium, possibly aided by the volatile fatty acids, may in part account for these conditions.

DYSIDROSIS.—Under the names Dysidrosis and Cheiro-pompholyx, Tilbury Fox and Hutchinson, of London, respectively, described cases in which deeply imbedded, pin-head sized, acuminate, primarily translucent vesicles occur upon the palmar and inter-digital surfaces. Both in consequence of coalescence and increase in size, bullæ may subsequently form an inch or more in height, filled with an alkaline or slightly acid fluid supposed to be sweat. Partial absorption occurs if the lesions be undisturbed, after which desquamation ensues from a reddened non-discharging surface. The cuticle about the lesions may be sodden, and macerated, or reddened; it is usually painful and swollen. There is often produced a sensation of pricking, burning, or itching. The eruption is most commonly discovered upon the hands, and less frequently upon the feet; though other portions of the body may be involved.

No little controversy has arisen respecting the exact nature of this disease, Fox and Crocker, on the one hand,¹ claiming a sudoral origin for the malady; while Robinson² concludes, from a careful

¹ The Histology of Dysidrosis, London, 1878, from Trans. of the Path. Soc. of London, vol. xxix., 1878.

² Pompholyx, Arch. of Derm., 1877, vol. iii. No. 4, p. 289.

study of a single case, that "everything points against its being an affection of the sweat-glands." In his treatise this author names the disorder pompholyx, classes it where it properly belongs among the exudative affections of the skin, and describes it as a neurosis. The evidence on this point is striking. Fox says: "I never knew any patient who had this disease . . . well." He describes a condition of well-marked cachexia in all his cases. Robinson's patient was sickly for years, had twice suffered from fracture of the femur, had lost three of six children, and was "depressed." The severest lesions exhibited by patients observed by the author, were those in a woman who had chronic enlargement of the spleen; and in a man who was profoundly cachectic, suffered from night sweats, had a sallow hue of the skin, and subsequently died paraplegic.

Geber, however, in studying two cases of this kind in middle-aged men coming under his observation, believed that the lesions were not pemphigoid.

HEMATIDROSIS, or bloody sweat, reported as observed by several authors (Foot, Ebers, Parrot), is a name applied to conditions in which blood has been seen to exude from an unbroken skin. The phenomena described under this title belong properly to the ensemble of symptoms called hæmophilia, and may in some cases be due to direct transudation of red and white blood-corpuscles and fibrine into the inter-epithelial spaces traversed by the sweat-pores. Geber points to the neuralgic, hyperæsthetic, pruritic, or emotional symptoms that are usual precursors to the flow of pale or bright red blood. The fact that the patients thus affected are mostly women, hysterical, dysmenorrhœic, or near the puberal epoch, also throws light upon these cases. In many of them petechiæ, or signs of hemorrhage into other tissues of the body, were observed.

In the effort to eliminate certain substances, accidentally or otherwise introduced into the system, the sweat may possibly become charged with iodine, turpentine, tar, arsenic, phosphorus, and other articles. After the ingestion of the last-named substance, the secretion is said to have occasionally become luminous. Doubtless several of the eruptions described in the chapter on dermatitis medicamentosa are due to a similar eliminative effort, especially those accompanied by excessive sweating and the production of vesiculation.

With equal reason it may be inferred that the sweat is at times charged with excrementitious and other products of the body; as, for example, the principles of the bile. During the late civil war the author observed several patients affected with yellow fever whose skins exhibited the characteristic hue of that disease, and whose sweat was similarly colored. The so-called "Galactidrosis," from supposed metastasis of milk, does not occur. Cases thus described have been instances of pathological sweat in the puerperal state.

2. Of the Sebaceous Glands.

The disorders named in this group all depend upon functional derangements of the sebaceous glands, whose office, it will be remembered, is the supply in part of the physiological unguent of the skin and hairs. What proportional part of this process is borne by the coil-glands, and what part by the sebaceous glands, it is difficult to determine. It should be remembered that the varieties of acne, which is a disorder of the sebaceous glands and their periglandular environment, are described in Class II., among the inflammations of the skin.

Seborrhœa.

Lat. *sebum*, tallow; Gr. *ῥέω*, to flow.

Seborrhœa is a functional disorder of the sebaceous glands, exhibited in an abnormal condition of the secretion as it collects upon the surface of the skin.

This disorder is also termed Steatorrhœa, Acne Sebacea, and Dandruff.

Symptoms.—Seborrhœa occurs in two forms, according to the condition of the excreted product. These are known as seborrhœa sicca and seborrhœa oleosa. The two forms are recognized clinically as of separate occurrence; and also as existing occasionally at the same time in one person. Either form of the disease may be limited to certain sites of preference, or be generalized so as to extend over all portions of the body provided with sebaceous glands. The most common seats of the disease are: the scalp, the face, the genital region, the dorsum of the body between the scapulæ, and the anterior surface of the chest. It appears at all periods of life, and in both sexes. As the sebaceous glands are mainly appendages of the hair-follicles, the lesions of the disease differ somewhat, according as they occur in the regions covered with long or lanugo hairs. In the same proportion, a difference exists in the career of the disease. At times it is a trivial and short-lived affection; at others it is persistent and intractable, lasting for years, and possibly for a lifetime. The individuals thus affected exhibit a difference also with respect to the general condition of their health. Some are anæmic, chlorotic, or asthenic; some are of the sanguine temperament, fleshy, red-faced, and thick-skinned; others again are absolutely healthy, so far as can be discovered, except for the local sebaceous disorder. This last fact is one of some significance. One may see exaggerated types of seborrhœa in vigorous men who have worn for one month merely, a skullcap, to which was fastened an apparatus for relief of fracture of the lower jaw.

The skin affected with a seborrhœa is usually anæmic, and either dry or humid. In such cases the subjective sensations are either slight and limited to a moderate degree of itching, of which the patient does not complain until he is questioned upon the subject,

or altogether wanting. At other times the glands, or periglandular tissues, are affected with a mild form of inflammation, and then the involved surface may be reddened and become the seat of a considerable pruritus.

Seborrhœa Sicca (or Squamosa)

is the most common of all forms of the disease, and occurs upon both the hairy and non-hairy portions of the integument. In the former situation, where it is vulgarly known as "dandruff," it is called—

SEBORRHŒA CAPILLITII, in consequence of its limitation to the hairy scalp. In its ordinary manifestations, the affection is recognized in the adult, by the formation in this region, of greasy, whitish or yellowish pellicles of dried sebaceous matter, which may be freely shed from the surface and cover the shoulders of the individual whose scalp is involved. At other times these fatty plates are more or less adherent to the scalp surface, or piled up in laminæ, one upon another. These may closely mat the hairs together, perceptibly near the exit of the latter from their follicles; or be abundantly disseminated through the mass of the hairs, some of which penetrate a flattened greasy scale, as a twig might be passed through the centre of a leaf. In consequence of their deprivation of unguent, the hairs to which the affected glands are accessory, become dry and lustreless, and fall from their follicles. If the process be not arrested, atrophy of the hair-follicle ensues, and the resulting alopecia is permanent.

Fortunately, the seborrhœa is usually symmetrical, and, correspondingly, the baldness which it occasions. The disfigurement then resulting is of the character of symmetrical senile alopecia, and is chiefly annoying as the loss of hair is premature. When the loss is asymmetrical, which is decidedly the exception, the disfigurement is greater.

The affection may be circumscribed, and in conspicuously selected patches where thin, mealy, grayish, or whitish scales cover the patch: or thick yellowish masses may paste the hairs firmly to the surface of the scalp. The disease may also extend over the entire surface of the scalp uniformly; or, as is frequently noticed, fringe the brow at the line of the hairs, and then extend chiefly over the vertex, being conspicuous at the line where the hairs are parted from vertex to brow.

Beneath the scales or crusts of dried sebum the scalp is usually lustreless and of a slate-gray color. As the disease does certainly occur at times in types intermediate between functional and inflammatory forms, the adjacent tissues may present a hyperæmic or even exudative feature, with true epithelial desquamation and considerable itching. One group of cases, assignable to this class, deserves attention. In them there is a tolerably well-diffused seborrhœa sicca of the scalp, and, here and there, irregularly distributed

over the surface, are filbert-sized, generally circular, dark reddish patches, covered with a moist secretion or a friable, granular, reddish and yellowish crust. These are scalp excoriations produced by the finger-nail. They are most common in "nervous" patients, who cannot resist forcibly digging the scalp on slight provocation.

Occurring in infancy, the disease is well known as "milk crust," or as *crusta lactea*. This may be merely persistence of the dried vernix caseosa about the vertex in the newly born, or it may occur in scalps which have been perfectly cleansed after birth. The crust differs somewhat in color with the tint of the child's complexion; and may vary from a light yellow to a dark brown. It may be thick, greasy, and mat the hairs together; or be thin, dry, and friable. It is a frequent complication of the eczematous disorders of this region, and, as a consequence, more often in the adult, every variety of hyperæmia and inflammation may affect the tissue beneath the crust. In infants and children, however, the resulting alopecia is never permanent, as the rapidly growing follicles hasten to reproduce the hair. The disease is also neither contagious nor followed by cicatrices, points upon which mothers are usually solicitous.

The regions of the brow, the surface covered by the beard of the male, and the pubic hairs may be involved in the disease.

Seborrhœa of the non-hairy portions of the body may exist upon the face (forehead, cheeks, chin, and nose), trunk, and genitals.

SEBORRHŒA FACIEI is characterized chiefly by the accumulation of thick, dirty-yellowish, and even yellowish-black, accumulations of sebaceous matter, often adherent to the surface and disfiguring the features by the artificial mask produced. This is exceedingly conspicuous about the nose, where the disease is at time symmetrically disposed. There was lately exhibited to the medical class at the author's clinic, a young woman with a complete cast, covering the nose uniformly from root to alæ, composed of only yellowish-gray sebum. Such masses once removed, the skin beneath is generally found to be pallid or slightly reddened, with the orifices of the sebaceous ducts patulous; while the under surface of the separated crust is seen to project downward in corresponding delicate prolongations, which Kaposi compares to stalactites. The crusts are rapidly reformed when the disease is not arrested. They are found in the furrows on either side of the nostrils, on the brows, the cheeks, and the pavilion of the pinna of the ear. They are most common at the puberal epoch in both sexes, when the sebaceous glands of the skin undoubtedly sympathize with the changes occurring in the beginning of the sexual life.

SEBORRHŒA TRUNCI is chiefly seen about the clavicles, scapulæ, sternum, and umbilicus. Its features are less pronounced than those of some other localities, probably because the friction by the clothing even in persons who neglect the care of their skins, serves to stimu-

late to a moderate degree the sebaceous glands of these regions. The disease occurs here in circumscribed or, more frequently, illy defined patches which by confluence may describe irregularly reticulated figures of reddish tint, when, as is usually the case, the few loosened fatty plates have been removed by friction. According to Duhring, who has carefully studied these features, the chest patches are circular, pale reddish in color, defined in outline, separate or associated in large groups, and covered with withered, greasy, grayish-yellow pellicles, the eruption here much resembling ringworm of the body. About the umbilicus, the fatty matters are remarkable for their tendency to speedy decomposition, with the production of an exceedingly fetid odor, which may prove to be the source of a mild grade of inflammation. In the latter event, a reddish halo surrounds the umbilical depression, which may be the source of a thin, sero-purulent discharge.

SEBORRHŒA GENITALIUM is usually located in men in the sulcus behind the corona glandis, though in individuals with a tight or redundant prepuce it may be more extended. In women, the accumulation occurs about the clitoris and vestibulum, though the external labia may be covered with the secretion in various degrees of fluidity. The smegma preputii supplied by the glands of Tyson may be thus the source of trouble either by its retention, or secretion in abnormal quantity or quality. In either event the tendency, as in umbilical seborrhœa, is to decomposition, fetid odor, and subsequent irritation, which may provoke inflammation of severe grade. The retention of this smegma beneath a tight prepuce in the male may provoke a long list of reflex symptoms, such as incoördination of movements in the lower extremities, nocturnal enuresis and pollutions, hernia, and irritability of the testis. In some cases the secretion forms a ring as hard as the rind of cheese encircling the glans. It should be remembered that the young of both sexes as well as adults are liable to be thus affected; and that in young female children these symptoms may have a medico-legal interest in connection with suspicion of criminal attempts.

SEBORRHŒA GENERALIS, affecting the entire surface of the body, is an exceedingly rare disorder. It has been described by authors as *Ichthyosis Sebacea*, *Cutis Testacea*, and *Pityriasis Tabescentium*. In the infant, the skin is universally spread with a greasy layer, rapidly renewed after removal, beneath which the skin seems to be varnished in reddish-brown shades. The consequent stiffening of the integument produces painful fissures, inability to take the nipple, and consequent marasmus. In adults, there is noticed the same marasmus; with greenish to blackish crusts covering the trunk and extremities, and desquamation of lamellæ of the sebaceous accumulation, corresponding, for the most part, to regions of the skin mapped out by its normal furrows and folds.

Seborrhœa Oleosa

is in its pronounced features rarer than seborrhœa sicca ; but to a less distinct degree is a condition sufficiently common in many forms of the disease. Here the sebaceous secretion is poured out as an oily fluid upon the surface both of the hairy and so-called non-hairy parts of the skin. In the former situation, both in adults and infants, the free oily substance is seen to cover as a coating both skin and hairs, and, especially in bald adults, to produce a glistening and shining appearance of the scalp. It often concretes into masses which are described above as the crusts of seborrhœa sicca. The same greasy layer can be seen in the non-hairy portions of the skin, especially about the nose, forehead, and cheeks. Free drops of oil can be occasionally wiped from such surfaces with a handkerchief. The ducts of the sebaceous follicles are here either patulous or plugged with comedones ; the surface may be reddened or pallid, but is usually cold to the touch. The oily substance serves to entrap particles of dust, soot, etc., floating in the air, and often thus a peculiarly dirty or even blackish hue of the face is produced. Some of the forms of seborrhœa described above in connection with the umbilicus and genitalia, are of this variety. In the negro, where the sebaceous glands are usually well developed and active, the oily forms of seborrhœa are common ; and the flux, at times, almost physiological. Even in the absence of their frequent anointing with palm-oil, one can see the naked blacks in Africa with exposed skins shining from exuded grease.

Etiology.—Seborrhœa may be due to local or general causes. This is a point which should be clearly understood, as Hebra, with his superb powers of observation, noticed that the majority of his cases occurred in young male and female subjects affected with chlorosis or conditions analogous to that state. It is a clinical fact of ready verification ; but it is clear that many cases are essentially of local origin ; and, as before indicated, a seborrhœa can be artificially produced in a healthy individual in the course of a few weeks by very simple local measures without interference with the general economy. Women with long hair are usually disposed to take special care of the scalp, upon which it grows. Men with short hair are more apt to attend chiefly to its disposition upon the head, and to neglect the care of the scalp. For the seborrhœa sicca of the hairy parts, neglect of the scalp is a frequent cause ; for the same disease of the non-hairy portions of the skin, in by far the greater number of all cases, chlorosis, struma, malnutrition, obstinate constipation, disorders of digestion and menstruation, and sedentary habits of life, are unquestionably responsible. The exanthematous and other fevers are often followed by asthenic states in which the same condition prevails. Hebra has pointed out the fact that the sebum of individuals who have fatty livers from chronic alcoholism, is peculiarly fluid and oily ; and it will be observed that few of all the disorders of the

sebaceous glands characterized by inspissation of the secretion occur in such persons.

Pathology.—It will be remembered that the sebaceous secretion is produced in consequence of a fatty transformation of the epithelia lining the acini of the sebaceous glands; it is, therefore, directly derived from the living matter of the protoplasmic elements of the rete. A seborrhœa is, therefore, strictly speaking, a catarrh of the epidermis; and the name is in this connection properly used, since most of the so-called catarrhs of the skin are in reality not such, the effused fluids being furnished by the bloodvessels. Typical forms of seborrhœa are strictly anomalies of secretion only, unaccompanied by inflammatory processes in either the glands or periglandular tissues. While other exceptional forms are without question thus complicated, the variations in the sebaceous product as to quantity, inspissation, fluidity, tendency to rapid decomposition and exhalation of fetid odors, may be due to variability in the transformation of the epithelia into fat under the influence of the trophic nerves, but this is a matter of conjecture. It is certain that these conditions are largely under the influence of external agents, such as friction, temperature, and air currents. In many cases the product of the disorder is composed, for the greater part, of epithelial masses mingled with a relatively small quantity of sebum, thus justifying further the view explained above regarding its catarrhal nature.

The unguents naturally found in excess upon the body or parts of it, such as the vernix caseosa, are, of course, physiological in character.

Diagnosis.—Seborrhœa is to be distinguished from :

ECZEMA.—The objective points of difference between eczema and seborrhœa depend upon the inflammatory character of the first named disease, easily recognized, whether upon the face or scalp, by the reddened, infiltrated, or discharging skin, and the considerable degree of itching which it occasions. In squamous eczema, the scales are rarely so abundant as to be shed freely from the surface, and are not greasy. It should be remembered, however, that the two diseases may and do coexist. Eczema of the scalp in infants is especially apt to be accompanied by a seborrhœa, a fact which clearly shows that the technical distinctions between many diseases, useful though they be for analytical study, are not always capable of clinical demonstration.

ICHTHYOSIS.—This is a congenital disease, usually involving the entire surface of the body, while seborrhœa is generally acquired, and rarely universal. The distinction between ichthyosis and the rare generalized forms of seborrhœa, described above, might involve a difficulty. But in the latter, the greasy character of the crusts, their color, and the marasmic condition of the subject of the disease, would sufficiently distinguish the two disorders.

IMPETIGO AND IMPETIGO CONTAGIOSA.—Here the only possibility of error would originate in the discovery of either of the two diseases

named, in the stage of crusting, especially upon the scalp. But both are acute disorders, with crusts much bulkier than the sebaceous matters formed in seborrhœa, and beneath such crusts the integument is reddened and evidently the seat of an exudation.

KERATOSIS PILARIS.—In this disease, also, there is a chronic accumulation of matters, partly sebaceous, on the hairy and non-hairy portions of the skin. But, unlike seborrhœa, the sebo-epithelial heaps are here aggregated in pin-head sized masses about the hair-follicles only, and never accumulate in such quantities as to paste the hairs to the surface. The disease is also most common on the extensor surfaces of the extremities.

LUPUS ERYTHEMATOSUS.—Hebra, in 1845, described a Seborrhœa Congestiva, which it would be indeed difficult to distinguish from lupus erythematosus, as the two are practically identical. Typical cases of the two diseases are widely different and readily distinguished; the atypical forms might lead to confusion. But lupus erythematosus, though occurring on the face, is rare on the scalp; it is accompanied by infiltration and the production of a new growth; and is followed by a characteristic scar. Its lesions are darker red than the congestive patches beneath certain seborrhœas of the non-hairy parts. The scales of lupus are tenacious and dry, and require scraping for their removal; those of seborrhœa are readily detached, greasy, and often cover the shoulders of the patient. The contour of the seborrhœic patch is ill defined, while that of lupus is very distinct, exception being made of the mask-like crusts seen in certain of the facial seborrhœas, when the greasy character of the layer is very evident. Lastly, seborrhœa is a disease of puberty chiefly, while lupus erythematosus is likely to be first seen in the earlier years of childhood, when facial seborrhœa is rare.

PSORIASIS.—Psoriasis of the scalp may resemble seborrhœa sicca. But the latter is rarely developed in such a universal exanthem as is frequent in the former. Few doubtful cases will come under observation, in which a psoriatic patch on the elbow, knee, leg, or sacrum, will not point to the nature of the disease. The scales of psoriasis are lustrous, larger, and not greasy, unless fatty applications have been made to soften them; and they cover, moreover, a reddened and exuding patch of integument. Psoriasis of the scalp and face prefers the areas of the forehead adjacent to the hairs of the scalp, and rarely departs boldly to the nose and the furrows beside the nostrils, favorite sites of a seborrhœa.

SYPHILIS.—Some forms of the pustular syphilodermata located upon the scalp and face, if observed only in the stage of crusting, might be confounded with seborrhœa. Here the history of the case, the discovery of other signs of syphilis (adenopathy, mucous patches, etc.), and the puriform character of the secretion beneath the crust,

should point to the identity of the disease. In syphilitic crusts about the angles of the nostrils, there is often a peculiar reddish-brown tint of the skin at the edge of the patch, the so-called "copper" color, which is significant. Crusts of the hairy scalp in syphilis are very often accompanied by post-cervical adenopathy, and especially by indurated enlargement of the occipital glands.

TINEA CIRCINATA AND TINEA TONSURANS.—In ringworm of the hairy parts, as also of the body, the microscopical discovery of the parasite will always point to the nature of the disease. Upon the scalp, the affected patches are seldom as diffuse as in seborrhœa; are usually circular; are often accompanied by fragility of the hairs; and, in the latter case, the discovery of stumps of hairs is significant. There is also a history of contagion and absence of the greasy conditions of the scales characteristic of seborrhœa.

Treatment.—The internal treatment of seborrhœa is often of the highest importance. The preparations most often indicated are: Iron in anæmic young women; cathartics in sluggishness of the bowels; and cod-liver oil when there is impairment of nutrition. Duhring recommends the sulphide of calcium in doses of from one-tenth (0.0066) to one-fifth (0.0133) of a grain. Arsenic, employed in the manner suggested by Sir Erasmus Wilson, is praised by Hebra:

R.	Vin. ferri	fʒjss;	50	
	Syrup. simpl.)	āā fʒij;	8
	Liq. potass. arsenit.)		
	Aq. destill.		fʒij;	60 M.
S.	A teaspoonful to be taken three times daily with the meal.			

In many cases, the acid iron mixture of Startin, or some modification of it, admirably meets the indications present:

R.	Magnes. sulph.	ʒij;	64	
	Ferri sulphat.	ʒss-ʒj;	0.66-1 33	
	Acid. sulph. dilut.	fʒij-fʒiv;	8-16	
	Infus. quassiae	ad fʒiv;	128	M.
S.	A teaspoonful in water, through a tube, after eating.			

The preparations of malt and maltine, now largely employed in the treatment of wasting diseases, will be found available in cases where the cod-liver oil cannot be well taken. Lastly, the bitter tonics may be needed. Throughout the treatment, the physician should insure a careful observance of the laws of hygiene. Sunlight, nutritious food, and open air exercise are not to be disregarded. In the large cities of this country, many young women of indolent habits are greatly benefited by sending them to the riding-schools for an hour's equitation daily.

The indications to be met by local treatment in seborrhœa are: first, the removal of the crusts and the fatty matters accumulated upon the surface; second, the restoration of the deranged function of the glands.

Upon the scalp, it is always well to warn patients, especially if the disorder is aggravated, and occurs in young women with apparently luxuriant tresses, that a considerable loss of hair will result. Many of the filaments are so impoverished by the chronic course of the disease, and so loosened in their follicles, that a complete cleansing of the scalp surface will bring them away in quantities sufficient to threaten a speedy baldness; and it is not rarely the case that patients attribute this to the treatment rather than to the disease. The fatty accumulations are first to be soaked in some oily fluid to facilitate their removal; and for this purpose olive oil, cod-liver oil, vaseline, cold cream, almond oil, glycerine, or lard is usually employed. The article selected should be used in excess, and in quantity sufficient to permeate all crusts. It may be poured over or rubbed into the scalp several times in the twenty-four hours; and at night a flannel or other cap be worn to insure still further success. In the case of children and infants, considerable gentleness is required in thus treating the scalp, especially in the subsequent washings, lest the surface be irritated. In young women it is rarely necessary to cut the hairs. As soon as the soaking with oil is insured, the crusts are to be removed by washing with soap and water, though when the accumulations are bulky, masses may be gently removed with fingers or comb. When the scalp is quite tender, ordinary toilet, or Sarg's glycerine soap, may be applied with warm water; but it is usual, in the case of adults, to employ the spiritus saponis kalinus of Hebra, two ounces (64.) of green soap digested in one (32.) of alcohol, filtered and flavored with lavender or bergamot. The surface should be thoroughly sponged with the spirit, and then warm water added till the foam of the lather is abundantly produced over the scalp, when an excess of water is finally used to cleanse the part of both crusts, oil, and soap. The scalp and hairs are then thoroughly dried, and anointed with some bland, fatty substance, if the surface exposed is tender and irritable; if not, with some stimulating pomade.

The last-named precaution is an important one. However extensive the seborrhœic crusts, it is possible to remove these completely by the measures described above, in every case; and with the first experiment patients are often delighted. Their disappointment is correspondingly great when they discover that the seborrhœa is not yet at end, and that, in the course of a few days, the fatty plates are as freely as ever deposited on the scalp, disseminated through the hairs, and showered upon the shoulders. Some will even declare that the soapy applications aggravate the disorder by increasing the seborrhœa. It should, therefore, never be forgotten that, having got rid of the extraneous matters accumulated upon the surface, there is still to be remedied a functional disorder of the sebaceous glands of the part.

In every case, then, after the use of the soap and water, which may be repeated as often as need be, daily, at intervals of several days, or once in the week, the scalp is to be thoroughly anointed. For this purpose olive oil, cod-liver oil properly scented, almond oil, vaseline,

or glycerine and water, may be used. In the course of a few days, in most instances, a more stimulating plan of treatment may be adopted; and, in that event, alcohol may be combined, for example, with the oil of sweet almonds, half an ounce (16.) of the latter to five ounces (160.) of the former, to which half a drachm (2.) of carbolic acid may be added, the whole flavored with the oil of bergamot.

Van Harlingen recommends the *oleum moringæ nucis*, or oil of benne, as a substitute for others, since it does not dry and clog, as do the latter. An ounce (32.) of this rubbed up with five grains (0.33) of powdered benzoin, and digested for three hours over a water-bath, with the addition of three drops of absolute alcohol, and filtered, furnishes an excellent basis for oily mixtures to be used on the scalp.

Dr. Morison,¹ of Baltimore, has devised an ingenious instrument for the application of oily fluids to the scalp. The latter are retained in a small reservoir, to which is connected a comb with perforated teeth. Through the latter the article selected for medication of the scalp readily passes down to the surface between the hairs.

In the place of oils after these ablutions the ointments are often used with more advantage. For this purpose the benzoated oxide of zinc ointment, cold cream, or salves containing ten per cent. of tannin may be applied.

In cases where milder effects are required, the scalp may be washed in water containing such alkaline substances as borax, ammonia, and the carbonate of potassium. The popular prejudice against these articles is based upon the abuse of strong alkaline lotions in the hands of inexperienced persons. Such lotions may be readily tested by the tongue for the degree of softness required for the scalp. They should, in the management of all cases, be followed by an oiling or greasing of the surface. Women solicitous about their personal appearance are apt to object to such inunctions, preferring greatly the drier conditions of the scalp and hair, a prejudice often responsible for the disease in question.

Veiel recommends the following formula:

R.	Extr. cinch. frig. par.	℥j;	15	
	Bals. peruv.	gtts. xv;	1	
	Cantharid. tinct.	gtts. xxiv-3ss;	1.5-2	
	Succ. citri	℥xv;	1	
	Ungt. pomat.	5jss;	50	M.
S.	To be rubbed into the scalp once or twice daily.			

The tars are useful in many obstinate cases. Tar soap may be employed in the washing; or the *oleum rusci* added in the strength of one to ten parts to the other salves recommended above. Ichthyol in ointments of the strength of five to ten per cent., and resorcin in spirit lotions of ten grains (0.66) to the ounce (32.) have also proved efficacious.

Repeated applications and patient care of the scalp are necessary to secure complete relief in the case of a disease as essentially chronic as seborrhœa. At times the local treatment may be changed with

¹ Maryland Med. Journ., January, 1885.

advantage. Sulphur enjoys a high reputation in the treatment of all sebaceous gland disorders; and in the form of an ointment, one to two drachms (4.-8.) to the ounce (32.) of cold cream, it is often of service. The author has used with success the hypochloride of sulphur, which has lately come into our markets from the English laboratories. But it is open to objection on account of its odor, which can scarcely be disguised. Beside these, the tinctures of cantharides, capsicum, and nux vomica are frequently incorporated with advantage into lotions and pomades for use upon the scalp. Most of the latter can be made sufficiently fluent for use in this situation, by adding a drachm (4.) or two (8.) of glycerine to the ounce (32.) of lard or cold cream. The alterative effect of the mercurials is also as evident here as in many other cutaneous disorders. At the head of the list, for this special purpose, stands the red oxide of mercury in the strength of from two to four grains (0.133-0.266) to the ounce (32.) of ointment; but the white precipitate, the ammoniated mercury, and calomel, in the proportion of five to ten grains (0.333-0.666) to the ounce (32.) may be often substituted for the former with advantage. Solutions of corrosive sublimate, in the strength of two to four grains (0.133-0.266) to the ounce (32.) of fluid, may prove of use in obstinate cases. Hillairet recommends a lotion containing from two to four fluidrachms (8.-16.) of sulphuric ether and two to four drachms (8.-16.) of borax dissolved in eight fluidounces (256.) of distilled water.

Viguiet advises the following lotion for use in seborrhœa of the scalp, in those cases more particularly where loss of hair is threatened :

R. Santal. ess.	}	āā m℥;	30
Rosar. ess.			
Chimaphil. umbell. ess.			
Pilocarpin. muriat.	}	gr. vijss;	50
Spts. vin. rectif.		3iij;	100
Camphor. spts.			
Glycerin.	}	āā 3j gr. xv;	5
Cantharid. tinct.			

Dissolve the pilocarpine in the alcohol, and then add the other ingredients.

The treatment described in outline above, may be used with success also for the relief of seborrhœa of the non-hairy portions of the body, especially the face. Here, it will be observed, the crusts have a singular tendency to re-form, and the most persistent care is necessary to secure permanent relief. Occasionally, after cleansing the surface by soap and spirit lotions, according to the indications of each case, it is of advantage to apply the ointment selected for subsequent application, not only by gently smearing it on the part with the tips of the fingers (always the most effective method), but also by spreading it on a compress, which, for the night at least, may be fixed in contact with the part.

Unna's lead-plaster mulls, used for this purpose in Germany, may be fairly well imitated by drawing strips of cheese-cloth through heated diachylon ointment and then smoothly smearing them with the same material.

When this tendency to reformation of the crust is abated, one or more of the dusting powders may be at times employed with advantage for the purpose of protecting the skin or exercising upon it an astringent effect.

The local treatment of seborrhœa of the genitals is somewhat different. Ointments rarely answer well in disorders of the mucous surfaces; and the green soap is too irritating for similar employment. Here washing with a good toilet soap and warm water is sufficient for the purposes of cleanliness, and diluted lotions containing alcohol, in the form of whiskey, brandy, or aromatic wine, suffice to procure relief. These can be made astringent with tannin, alum, or the zinc sulphate, and, when there is pain or tenderness, opium can be added. In this form of the disease, as also in seborrhœa of the umbilicus, carbolic acid or the chlorinated soda may be necessary to correct fœtor. In the generalized varieties of the disease the surface is to be thoroughly anointed with oil. The body, especially that of infants, is to be swathed in flannel or other good non-conductor of heat; and a roborant treatment directed to the general adynamia.

In the grave forms of seborrhœa of infants described as keratosis sebacea, ichthyosis sebacea, etc., the body must be kept anointed with oils or fats. Artificial feeding is demanded by the condition of the mouth.

Prognosis.—In forming a prognosis in cases of seborrhœa, it must be remembered that the disease is frequently an obstinate one; and the resulting loss of hair, if symmetrical, may be remediless. Much may be done in the way of saving that which is left. Facial seborrhœa is much more amenable to treatment; and seborrhœa of the genitals and umbilicus is an entirely manageable disease. When the affection is generalized, the prognosis is in the highest degree unfavorable.

Comedo.

Lat. comedo, a spendthrift.

Comedo is a disease in which an inspissated secretion, lodged in the excretory ducts of the sebaceous glands, becomes visible upon the surface in yellowish-white or brownish-black points.

Symptoms.—Comedones occur exclusively in the ducts of the sebaceous glands, and consist of a whitish fatty plug formed by the inspissation of the secretion of these glands, one extremity of which is visible at the surface when the plug is *in situ*. Occasionally they project to an appreciable distance above the general level of the integument; but often the extremity of the plug is slightly depressed below that level. There may be but two or three upon the face, which is their most common seat; or the nose, forehead, cheeks, chin, the front and back of the neck, and the back of the trunk, and the penis may be thickly studded with them. The visible extremity of the comedo varies in size from a needle-point to a pin-head. They are readily expressed from the follicles in which they are lodged, and

when thus examined are seen to be whitish moulds of inspissated sebum, one to two lines in length, the exposed extremities of which have become blackened by the dust and dirt entrapped at that point. In consequence of this suggestive appearance of the mass, the disease has been vulgarly known as "black heads" and "skin worms." The deformity produced in the face when these lesions exist there in large numbers, is strikingly conspicuous; and it is for the relief of this chiefly, that the practitioner is consulted. The subjective symptoms awakened are of trifling moment. The disorder is essentially chronic in its course. Isolated comedones may be observed for years in one situation without apparent change or modification of any sort, and without producing the slightest local or constitutional derangement. Others appear, only to disappear under the influence of the usual hygienic regimen of the skin of the face. Others, again, serve to irritate the skin in which they are implanted, precisely as though they were foreign bodies; and the sebaceous glands and peri-glandular tissues, with and without the operation of such cause, exhibit grades of hyperæmia and inflammation. Comedones may occur as the sole lesions of the skin, even to the extent of very great multiplicity; or they may coexist with other diseases of the glands, chiefly acne. They may occur at any period of life, but, like seborrhœa, are most frequently observed at the puberal epoch in both sexes. According to Kaposi, the disease tends to disappear in women earlier than in men, in whose case it may be prolonged to the twentieth or thirtieth year.

Crocker¹ has called attention to the occurrence of comedones in children, with a special tendency to grouping in places subjected to heat and moisture, and also to occurrence upon the hairy scalp.

Occasionally a so-called "double" comedo is formed, a plug of inspissated sebum being expressed from the skin, each extremity of which is discolored. Whether this be due to a duplicity of efferent ducts in a single gland, or to an artificial or pathological connection between two adjacent glands, is not clear.²

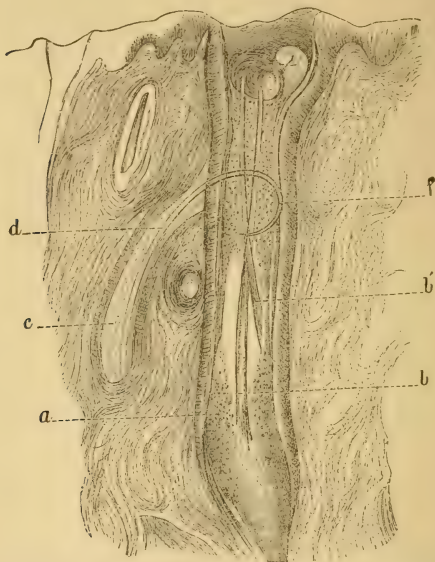
Etiology.—Much has been written with reference to the improper care of the skin as a cause of comedo, the neglect of soap in washing the face, and the influence of the trades, as in the case of those who work in metals, dust, and tar. But observation shows that these are exceptional causes. Very obstinate and generalized lesions occur in the skin of intelligent young men and women of the upper social classes, who regularly wash their faces with toilet soap, are rarely exposed to dust, and whose habits and recreations are of the most healthful character. On the other hand, observing the grimy faces of coal heavers, machinists, masons, and ink manufacturers, one is impressed with the singular rarity of the disease in such laborers. The cause of the constipation of the gland is unquestionably to be sought for elsewhere, in the most of cases. It is true that chlorotic

¹ Lancet, April 19, 1884.

² A. H. Ohmann-Dumesnil: Journ. of Cutan. and Ven. Dis., February, 1886.

young women, affected also with dyspepsia and torpor of the bowels, may exhibit the disease; and equally certain that many cases occur in peculiarly thick-skinned brunettes, or men with a characteristic reddish-brown and greasy-looking complexion. But for all this, many such never suffer from comedones, while often a perfectly healthy, fair-skinned girl will be greatly mortified by the disfigurement of her face.

FIG. 29.



Section of a comedo. *a*, excretory duct of a sebaceous gland filled with a comedo; it contains also two small hairs with brush-like inferior extremities; into it opens a small hair-follicle, *c*, whose contained hair, *d*, after touching the opposite wall of the duct, curves downward at *f*. (After KAPOSI.)

In yet other patients there is unmistakable connection between this disorder and chlorosis, serofulosis, dyspepsia, habitual constipation of the bowels, menstrual derangements, and cachexia. This connection is demonstrated by the remarkable improvement manifested in the untreated skin when improvement of the general health is assured.

Pathology.—The mass termed the comedo is a collection of concentrically packed epithelial plates mingled with masses of cholesterine, fragments of epithelia undergone fatty transformation, minute lanugo hairs, and, occasionally, upon the exterior, the *acarus folliculorum*. This little mite, first detected by Henle, in the ceruminous glands, was by Simon and others once thought to be the cause of the comedo,

a view which is now abandoned by all dermatologists. The parasite, in persons upon whose skin it exists, can be detected in masses of commingled sebum and epithelial plates scraped from the free surface of the integument, as also upon the surface of those who do not exhibit any disorder of the sebaceous glands. The comedo plug is located either in the excretory duct of the sebaceous gland or in the pouch-shaped canal common to the sebaceous gland and the hair-follicle. It will be remembered that in the class of sebaceous glands chiefly involved in the comedo, the hair-follicle is rather an appendage to the former, the relation between the two, evident upon the scalp for example, being here reversed. According to Biesiadecki, the hair-follicle often forms here an obtuse or even a right angle with the duct of the gland, and the point of the hair being thus projected against the wall of the duct, is occasionally curved downward upon itself, exciting thus an irritation at the point of impact and subsequent multiplication of the protoplasmic elements lining the canal. Thus he explains the epithelial character of the outer envelope of the plug; the special occurrence of the disease at the puberal epoch, when, as is well known, there is an especially active growth of the hairs; and, lastly, the frequent discovery of lanugo filaments in the expressed contents of the common excretory duct.

Diagnosis.—The recognition of the disorder is attended with no difficulty, patients themselves being usually sufficiently observant to identify the affection, though frequently misled as to the character of the "skin worm." It is, as might be expected, a frequent coincident of acne; its lesions, when commingled with those of the disease last named, being either in preponderance or so infrequent as scarcely to attract the attention of the patient. A condition somewhat resembling the comedo may be produced upon the face when tar, or ointments of mercury and sulphur are applied to it at the same time, the resulting black sulphuret appearing conspicuously at various points upon the skin, often at the orifices of the sebaceous glands.

Curiously atypical cases, however, are occasionally observed, and these might confuse one unfamiliar with the singular variations displayed in almost all sebaceous gland disorders. Thus Cauty¹ reports a remarkable case in a boy ten years of age, who was somewhat imbecile but well nourished. The upper part of the back, both shoulders, and the outside of both arms were covered with short bristles, of a clear, darkish brown-yellow color, and acuminate apices. These bristles were, at the edges of the group, gradually shortened from their full length of three thirty-seconds of an inch, until they joined the skin, which was at the junction raised into polygonal, flat disks, finally graduating to the sound integument of the hands, chest, and back. The feeling communicated to the hand on passing it over the shoulders was exactly similar to that of touching a coarse brush, and the bristles gave way under the touch, resuming an upright position

¹ Medical and Surgical Journal, March 4, 1882, p. 237.

afterward. There were a few pink maculæ over the body, and considerable scaly thickening on and around the patellas. The bristles were expelled comedones, containing very few immature hairs and very little sebum, drying up into a horny substance. They were firmly attached, requiring more force to remove them than to extract a well-rooted hair; and when removed they left a small, central depression, surrounded by a circle of torn epithelium, which retained them in position. They averaged one hundred to the square inch, and had existed over three months.

A somewhat similar case was exhibited by Dr. Warren, before the New York Dermatological Society, January 26, 1886, and described as *keratosis follicularis*.

Treatment.—The internal treatment of the patient affected with comedo is largely that described in connection with the subject of seborrhœa. Cod-liver oil, iron, the bitter tonics, and preparations indicated by any special condition of the patient's health, are not to be omitted. Open-air exercise, bathing, and the avoidance of all medicinal and dietary articles which might tend to aggravate the disorder, are also imperative.

Even aggravated cases of comedo are completely relieved by natural processes in the course of time. These processes are, however, slow, and may require years for their completion. The rarity of comedones in middle life and advanced years sufficiently attests this fact. Presumably this natural cure is due to the more vigorous growth of lanugo hairs with the increment of age, which thus push forward slowly to the surface the excrementitious mass, until it is gradually removed by ordinary friction and ablution. Absence of comedones from the scalp, where the hair is vigorous, is certainly a significant fact.

Comedones are removed artificially by the aid of an extractor. The instrument formerly employed for this purpose was shaped like a watch-key, the cylinder of which had a smooth bore and bevelled extremity. This clumsy tool is far surpassed by the exceedingly convenient comedo-extractor designed by Unna and modified by Piffard (see Fig. 27). Each end has a convex bowl-like surface, with apertures cut to gauge and the orifices slightly counter-sunk. It is productive of far less pain to the patient than other instruments, and can be wielded, on account of its long shank, with greater precision and ease by the physician. The surface to be operated upon is best previously moistened by spraying it with a thymol and glycerine, or eucalyptol and glycerine solution. Often a sharp-edged or well-rounded needle, firmly held in a needle-holder, may be advantageously employed, alternately with the extractor, in opening certain follicles or somewhat loosening the plug of others. All of these instruments should be scrupulously disinfected before use. With the present knowledge had on the subject of transmission of disease, the danger of such manipulations as these with uncleansed instruments should never be overlooked. Wigglesworth suggests the performance of

the operation at night; and there are good reasons for selecting the hour before retiring as the time for all vigorous topical applications to the face. Ointments then applied can be left in contact with the skin during the hours of sleep; and the patient be at liberty to resume his usual vocation in the daytime with his face free from conspicuous evidence of local treatment.

An ordinary watch-key, the thumb-nail, or a spatula may also, on occasion, be used in the extraction of comedones, which may be, if few, removed at one sitting, or, if numerous, on separate occasions. Repetition of the process is usually required by the reformation of the plugs.

Once they are removed, the skin should be sponged and bathed with hot water, then thoroughly dried, and anointed with an ointment which may be medicated to suit the indications of each case. Sulphur, as in all the functional disorders of the sebaceous glands, enjoys here also the highest reputation. In the strength of one-half to one drachm (2.-4.) to the ounce (32.) of cold cream or vaseline, it may be applied as an ointment; or as a lotion, in combination with spirits of wine, glycerine, etc. The author has frequently used with advantage the mild application suggested by Piffard in acne, equal parts of sublimed sulphur, alcohol, compound tincture of lavender, glycerine, and camphor water.

Mercurials are also of some advantage locally, and, as before indicated, should not be employed at the same time with preparations of sulphur. The use at night, especially in obstinate cases, of the white precipitate ointment, or one compounded of two grains (0.133) of the red oxide to the ounce (32.) of cold cream will often prove of benefit. One to two grains (0.066 to 0.133) of corrosive sublimate to the ounce (32.) of glycerine and rose-water may be substituted for the latter in coarser skins.

When the extraction of the plug is not attempted nor permitted, something may yet be done to remove the inspissated mass. Repeated sponging every third night with one ounce (32.) of the green soap, digested in an equal quantity of Cologne water, will, at first certainly, seem to render the comedo more conspicuous, but will slowly operate to dissolve the sebaceous secretion.

Unna has lately observed that the blackish discoloration of the comedo extends to a certain degree below the external extremity of the plug, a circumstance, in his opinion, militating against the dust and dirt theory, by which the hue of the comedo point has been explained. He concludes that this is the result of pigmentation, such as that producing the coloration of the hair, nails, and skin in several other anomalous conditions. Having this in view, he prescribes an ointment containing four parts of kaolin, three of glycerine, and two of acetic acid, with or without the addition of a small quantity of ethereal oil. This is applied at night, the eyes being carefully closed, for a few nights in succession, when the black points of the lesions are removed, and the comedones then readily extracted. Citric or dilute hydrochloric acid is employed, with the same end in view.

The author has employed this formula in about fifteen cases, with varying results. It cannot be considered as efficient in every form of comedo.

Actors, actresses, and women of fashion will occasionally persist in using variously colored toilet powders while under treatment, the injurious ingredients of which are often the cause of the disease. The practitioner may then either refuse to be responsible for the care of the case; substitute a harmless for a noxious powder; or gently anoint the face after his treatment of it with a bland ointment, upon the surface of which the theatrical effects are subsequently produced. In such cases the use of soap and water with each dressing is even more than usually imperative.

Comedones of the penis need not be treated. This injunction is suggested by the occasional demand made upon the physician by the sexual hypochondriac, who regards these lesions with a degree of alarm which he can best appreciate who has been confronted with these cases.

Prognosis.—As the disease tends naturally to a spontaneous, though occasionally long-deferred resolution, the prognosis is favorable. Treatment in many cases will accomplish much in hastening the result. The most obstinate forms are those in which the face, back of the ears, inside of the auricle, neck, and shoulders are studded with relatively small, indolent comedo points, about which the orifice of the duct rises in a whitish rim. This, when felt with the finger, produces the impression of hyperplasia of the wall of the duct. Such cases, however, are nearly allied to the forms of acne described elsewhere. With exceeding rarity, the comedo is merely the first step of a more serious local affection. In early life a single prominent lesion is formed, and though the plug be frequently removed and finally be no longer reproduced, the orifice of the duct remains patulous in middle life. Slowly thereafter its walls undergo a metamorphosis and a warty epithelioma results.

Cyst.

Gr. κύστις, a bladder.

Sebaceous cysts are millet-seed to egg sized and larger, milky-whitish, or yellowish-white, encysted tumors of the sebaceous glands, occasionally having the color externally of the normal integument, either imbedded within the skin or projecting above it.

The term sebaceous cyst is applied by some authors to one merely of the two disorders of the skin to which it properly belongs, viz., the wen. In these pages it includes both milium and steatoma.

[A.] Milium.

Lat. *milium*, a millet-seed.

Symptoms.—Milia, also called Gruta, occur upon and about the eyelids, the cheeks, the temples; the penis, scrotum, and corona

glandis of men; and the internal face of the labia minora of woman. They are millet-seed to pin-head sized, globoid masses, rarely attaining the dimensions of a coffee-bean, showing within the epidermis as though kernels of rice were lying there immediately beneath a translucent layer of tissue. They occasionally project from the surface to such an extent as to resemble small-sized vesicles filled with milky contents. In color they are yellowish and whitish. They are often congenital; and can be recognized about the lids and temples of the newly born infant; they are also seen, however, in middle life, when they develop very slowly, and sometimes persist for years. They are often observed in the neighborhood of cicatrices, which latter in such cases have usually been effective in their production. They occasion no subjective sensation, and are usually so insignificant as to induce no deformity. They never degenerate by ulcerative processes, but when not artificially removed are, in the course of years, exfoliated in the natural processes of physiological desquamation.

Etiology.—Milia are at times produced mechanically, the stroke of a knife-blade, accidentally or by the processes of surgery, separating one or more of the acini of a sebaceous gland from the main body. The contracting bands of a cicatrix, after the destruction of tissue from any cause, may operate in a similar way with a precisely similar result. Having this in view, it may be said generally that milium is always the result of a cause which prevents the transformation of the epithelium lining the gland into fat, and the subsequent excretion of this upon the free surface of the skin. These causes are thus, for the most part, obscure, but all are probably of purely local significance.

Pathology.—When a milium is incised externally, a spherical body of nearly corresponding size may be expressed, though it may require tearing from a minute pedicle below, which represents the attachment to the hair-follicle. The small mass thus extracted is then seen to be composed of several thin envelopes suggesting the capsules of the onion, and representing cornified epithelia not undergone fatty metamorphosis, in the centre of which is a fatty nucleus. This mass represents the contents of one or more acini of a superficially situated sebaceous gland, cut off from the main body of the follicle in the manner described above, and always covered when *in situ*, as Kaposi has shown, by a delicate layer of the superimposed corium containing papillæ. Usually the orifice of the excretory duct cannot be appreciated in milia, though occasionally these lesions are developed when the orifice is patulous.

These singular bodies do not always represent conditions of mechanically pent-up sebum, as the epithelia from which their contents are produced seem at times indisposed to fatty transformation and particularly apt to develop into horny or other formations. Thus Foster, of Boston, describes one where the process of calcification had been apparently complete; Wagner has observed colloid contents in certain opalescent lesions which appeared in the cheeks and temples

of a woman; Bärensprung and Hebra report numbers of acutely produced milia following pemphigus and erysipelas; and Virchow and Rindfleisch describe milia of the hair-sac and similar lesions accompanied by cyst of the hair-follicle adjacent. It would seem rational to conclude that, in cases, the cause of milia is to be sought in obscure changes by which the epithelia of the gland are primarily affected.

Robinson believes that milia originate from miscarried embryonic epithelia from a hair-follicle or from the mucous layer of the epidermis.

Diagnosis.—Milia might be mistaken for minute vesicles containing a milky fluid, but puncture of the lesion, with expulsion of its contents, would at once disclose the character of each. Comedones with blackish external points, surrounded by the patulous orifice of the excretory duct and prolonged more deeply into the substance of the skin, could scarcely be confounded with milia.

The most minute of the lesions of xanthoma have a yellowish color and cannot be as readily scraped away from the subjacent tissue as can milia.

Treatment.—Milia rarely require treatment, as they are usually relatively few in number, and produce neither subjective sensation nor deformity. If desired, they may be opened with a fine milium needle, and their contents turned out. To insure their non-recurrence, the little sac left after the operation may be entered with a needle dipped in a fifty per cent. solution of chromic acid. This operation may have to be repeated in the rare cases where the lesions exhibit a special tendency to recur.

The simplest and most elegant method of removing these and many similar-sized lesions of the skin is by the galvanic battery. With from four to six cells in the current, the negative pole is connected with a fine needle which is introduced within and beneath the lesion, while the moistened sponge of the positive pole is in contact with the skin of the patient. The operation is bloodless and effectual; insignificant or no scars resulting.

The prognosis is always favorable.

[B.] Steatoma.

Gr. *στέαρ*, fat.

This form of sebaceous cyst is also called Wen, and Atheroma.

Symptoms.—The history of the development and career of wens does not greatly differ from that of milia, already described. They are usually slow of growth; unattended by subjective sensation; occur as single or multiple tumors on the head, trunk, or genitals; and, being larger than milia, may attain the size of a hen's egg. They are situated beneath, within, or upon the skin; are usually unattached to the deeper contiguous tissues; and develop into irregularly globular, occasionally large button-shaped, masses, covered by an integument usually unprovided with hairs. This envelope may be quite normal in hue; or unnaturally whitish from pressure; or,

especially upon the bald scalp of certain fleshy men of middle years, reddened, shining, and greasy in appearance. At times they are to be distinguished only by passing the fingers through the long hairs of the scalp beneath which they are hidden; at others, they are so conspicuous in consequence of physiological alopecia as to occasion considerable disfigurement. They vary greatly in consistency, but usually produce to the touch a certain feeling of elasticity, especially if the cyst be tensely distended. They are rarely attacked by inflammation, resulting in suppuration and ulceration.

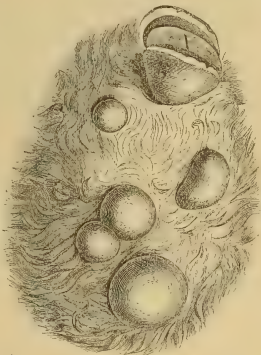
Tumors of this kind are rarely exceedingly numerous. MacLaren's patient,¹ a lad nineteen years old, exhibited tumors over the entire surface of the body, which proved on examination to be sebaceous cysts, but which presented all the appearances of multiple fibromata.

Pathology.—Wens represent an advanced grade of distention of the sebaceous glands by their contents, and a response to the constant pressure in hypertrophy of the glandular envelope. Their contents are semi-solid, curdy, cheesy, and granular; or fluid and milky; or fluid and purulent. These are the inspissated or chemically altered products of the gland secretion, recognizable as such by the materials of which they are composed, masses of fat and debris of epithelia, with an occasional lanugo or undeveloped hair.

Diagnosis.—Steatomata are to be distinguished from fatty tumors, which, however, are more commonly observed about the scapulæ, loins, buttocks, and extremities; while wens are very rare except about the scalp and neck. They lack also the peculiar "pillowy" feel of fatty tumors. Suppurating wens in these regions may readily be mistaken for circumscribed abscesses, if regard be not had for the history of the tumor usually long preceding. Syphilitic nodes of the same part are usually both tender and painful; osteomata are also firmly attached.

Treatment.—The removal of a wen is accomplished by excision, after previous puncture of the sac, and the removal of its contents. Several fatal cases, however, are on record as the result of this operation; due not so much to the nature of the excised tumor as to its situation, surgical wounds of the scalp being particularly liable to erysipelatous and other complications. As the incision required for the removal of the wen must necessarily extend for some distance

FIG. 30.



Cysts of the scalp, one of them being laid open to show its contents. (GROSS.)

¹ Brit. Med. Journ., Oct. 1885.

on either side of the tumor, a linear scar results which on the bald scalp is often very conspicuous as a relic of the lesion. In consequence of the possibility of danger, many surgeons prefer destruction of a prominent section of the mass with acid or alkali, leaving the sac, after expulsion of its contents, to wither gradually, though it may then be often withdrawn by forceps.

Complete obliteration is sometimes effected by puncture, expression of contents, and the subsequent induction of artificial inflammation in the walls of the cyst by injection of tincture of iodine, pure sulphuric ether, and other irritating fluids, as in the operation for the relief of hydrocele. With the antiseptic precautions observed in surgical practice to-day, the removal of these lesions from any part of the body may be regarded as unattended with great risk.

Prognosis.—The removal of the wall of the cyst is not followed by a return of the lesion. In debilitated and cachectic patients there may be spontaneous ulceration and sloughing, with or without surgical interference. Mr. Thomas Bryant¹ reports a carcinomatous tumor following the removal of a steatoma from the buttock of a woman sixty-three years of age.

Asteatosis.

Gr. *a*, privitive; *στέαρ*, fat.

Asteatosis is that condition of the skin in which there is absolute or relative deficiency of the sebaceous secretion.

Symptoms.—Insufficient lubrication of the skin by its natural unguent may be either general or partial, and occur either as an idiopathic or symptomatic disorder. It is produced artificially by any agents which continually withdraw the fatty substance from the skin surface, as in those trades necessitating the constant immersion of any parts of the body in strong alkaline solutions, or waters highly impregnated with the salts of lime and potash. As an idiopathic affection, it is of very rare occurrence, but it is not an infrequent accompaniment of other local or constitutional diseases, such as psoriasis, lepra, angioma pigmentosum et atrophicum, ichthyosis, and lichen ruber. In these cases the skin becomes dry, often thickened and indurated, and, as a consequence, friable, prone to desquamation, fissures, and chaps. When handled, the absence of sebaceous secretion is noticeable in the objective sensation produced. It is a well-marked feature of the marasmus of old age. Some authors have described, under this title, the dry thickening and induration of the palm of the hand, accompanied by curving of the fingers toward the plane of their flexor tendons, which is occasionally to be observed among laundresses. But considering the absence of sebaceous glands from the palm, where in the author's experience this affection is most pronounced, it should be properly excluded from the list of sebaceous disorders.

¹ Brit. Med. Journ., May 31, 1884.

Treatment.—No internal medicaments are known to have the power of stimulating especially the sebaceous secretion. None, indeed, could be capable of having such action when, as is often the case in the disorders described above as characterized by asteatosis, there has resulted an atrophy of the sebaceous glands. The most that can be accomplished is the external application of an artificial unguent; and for this purpose cod-liver oil, almond oil, palm oil, vaseline, lard, or butter may be employed. Vaseline is in many cases to be preferred, as the other articles named are liable to become rancid after oxidation, and thus act as irritants to the skin. With such partial or general lubrications, however, a warm bath with soap and water should be ordered every second or third day, immediately after which the inunction may be repeated.

Prognosis.—In all those cases where the asteatosis is induced by agents operating externally upon the surface, a reasonable hope of recovery may be entertained after the withdrawal of the cause. Persistence of the latter is liable to be succeeded by the occurrence of eczema or dermatitis medicamentosa. A complete cure can scarcely be expected when this condition is really a symptom of one of the disorders already named.

CLASS II.

INFLAMMATIONS.

Exanthemata.

Gr. ἐξάνθημα, blossoming, flowering.

The Exanthemata are specific fevers, frequently occurring in epidemic form, communicable by contagion, preceded by a period of incubation, and characterized by systemic disturbance, with an efflorescence upon the skin, of different type in each, as also by involvement of other organs of the body, a single attack often conferring immunity upon an affected individual during his or her lifetime, against subsequent attacks of the same disease.

For a detailed consideration of the phenomena of the exanthematous fevers, the reader is referred to the standard treatises on the subject, in the field of general medicine. Brief space is allotted here, merely to a description of the cutaneous lesions by which they are severally characterized. These are unlike in each disease; and yet all exhibit certain common characteristics. In all, the eruptions are symmetrical; and in typical cases, general. In each, the efflorescence is succeeded by a desquamative or exfoliating condition of the skin. In each there is, within relatively fixed limits, a distinct stadium of the pathological process, within which it is completed, and beyond

which, however persistent may be its remote sequelæ, there is no chronic manifestation of the disorder. Each also is produced solely by its own specific contagium, derived exclusively from an animal body affected with the same disease, being never, so far as known, generated from any other source, nor merging by imperceptible degrees the one into another. Two of these may rarely concur, but under such circumstances the one is always pronounced in its features, which either closely precede or follow those of another. No specific medication is known to be capable of arresting any one of them, each pursuing its course uninterruptedly to a favorable or fatal termination, according to the intensity of the poison present in each case, and the more or less favorable or unfavorable conditions of the sufferer. Finally, it seems probable that, at no distant date, specific bacteria or micrococci will be demonstrated to be etiological factors in the production of each.

Morbilli.

(Measles, Rubeola.)

Measles is a specific, contagious, febrile disorder accompanied by a cutaneous exanthem and an acute catarrh of the mucous surface of the respiratory tract.

This disease is preceded by a period of incubation lasting from eight to twenty-one (usually from ten to twelve) days, a period in which there may be no evidence of ill health, or merely a moderate degree of lassitude and inappetence. To this succeeds a prodromic fever, the temperature rising to 103° – 104° F., occasionally alternating with chills, or a sensation of chilliness, dryness of the skin, pains in the head, thirst, occasionally sweating, rarely convulsions in children, and, almost invariably, a serous catarrh of the mucous surfaces. By the second or third day the temperature begins to decline, while the catarrhal symptoms increase. These are manifested in sneezing, a copious secretion from the eyes and nose, and engorgement of the exposed mucous surfaces, especially of the conjunctiva, nares, and throat. Occasionally, the tongue and fauces exhibit a few isolated, minute, reddish puncta. In consequence of the implication of the larynx, trachea, and ultimately the larger bronchi, there is a hoarse, frequently an incessant and teasing cough, of a convulsive character, accompanied by expectoration of mucus in moderate quantity. This prodromic period lasts from three to five days, but is, in exceptional cases, prolonged to twice that length of time. Upon its conclusion, the exanthem appears, usually on the fourth day, with aggravation of the fever, the temperature rising to 104° – 106° F., and remaining at that point till the eruption has reached its apogee, when it commonly declines *pari passu* with the severity of the skin symptoms.

The eruption of measles usually appears first upon the face (the forehead and temple), and thence extends in about thirty hours over

the neck, upper portion of the trunk, and superior extremities. Between the fourth and sixth days of the disease, it has usually attained its deepest shades of color, and its maximum of development over the entire surface of the body, including the palms and soles. This maximum attained, the eruption gradually fades; the tumid condition of the skin, most noticeable on the face, also subsides; the catarrhal symptoms and cough become less annoying; and the patient enters upon the period of desquamation.

The eruption is characterized by the occurrence of reddish, yellowish-red, mulberry-red, deep raspberry-red, or, in extreme cases, violaceous-tinted, small finger-nail sized maculæ, either not elevated or very slightly raised above the general level of the integument; or by the occurrence of large pin-head sized, discrete papules, much more rarely pin-point sized vesicles, corresponding in color to the shades described above, and highly suggestive of the first efflorescence in variola. These lesions become pale under pressure, exhibiting then a yellowish tint, and are often set together very closely, particularly over the upper segment of the body, in patches suggesting a crescentic outline. The term "suggesting" is here used purposely; as it is difficult, by selecting a single patch, to determine by the eye alone the existence of such a configuration; while yet an examination of the eruption as a whole may often very clearly convey this impression to the sight. In other words, the crescentic outline is far less distinct than, for example, in certain of the papulo-crustaceous syphilodermata. Usually, patches of sound skin can be recognized, even when the eruption appears to be confluent, complete confluence never occurring so as to form a sheet or mask over an entire area of the skin. Individual lesions may so merge as to be well-nigh indistinguishable separately; yet, on the whole, the eruption deserves fully the plural character of its English name. It is made up in all cases of innumerable elements, whose identity is never wholly lost. The subjective sensation awakened is occasionally a severe itching or burning; frequently this is a matter of insignificance in comparison with other disagreeable symptoms—*e. g.*, the cough, coryza, and fever.

Desquamation is accomplished usually with cessation of fever and the production of yellowish-brown pigmentations of the surface where the elements of the eruption have existed, involution being first manifested in the site of the lesions which were earliest to develop. Gradually and simultaneously, the catarrhal symptoms of the respiratory passages diminish in severity. This final stage of the disease is usually terminated in a fortnight from the date of invasion.

The complications and anomalies of measles depend: upon the intensity of the poison, displayed in the most formidable symptoms where human beings are crowded together, as in camps and prisons; upon the degree of physical vigor; and also upon the various hygienic surroundings of the victims of the disease. Thus, the period of efflorescence may be unusually prolonged; the eruption may disappear suddenly, and as rapidly reappear; the cutaneous symptoms may alone be wanting; the latter may be commingled with

petechiæ due to cutaneous extravasation of blood, which may be also accompanied by severe epistaxis; and the catarrhal condition of the mucous surfaces affected may terminate in croupal or diphtheritic disease, may be followed by capillary bronchitis, catarrhal pneumonia, and even by pulmonary tuberculosis. Typhoid conditions may also supervene, and chronic inflammatory affections of the eyes and of the Schneiderian membrane result.

The pathology of the cutaneous lesions in measles is that merely of acute hyperæmia occasionally passing into exudation, limited for the most part to the vascular papillæ of the corium and the perifollicular plexuses of bloodvessels. Post-mortem, the eruption fades, as the result of the gravity of the blood, from the anterior aspect of the body as it reclines upon the dorsum.

While it is possible that the cause of this disease will be one day demonstrated to depend upon some of the inferior organisms, no observer can yet claim to have conclusively established the fact. Bacteria, of small size and great mobility, have been found in the blood by Coze and Feltz; micrococci in the trachea by Klebs; spherical bodies in the breath of children, and, post-mortem, in the lungs and liver by Braidwood and Vacher; and similar organisms in the vesicles and pustules of malignant measles by Keating and Formad.¹

The disease is one of infancy chiefly, probably because at that age there is always the largest number of individuals unprotected by previous attacks. In every case, the malady results from contagion, mediate or immediate, from an infected human subject. It spares no age or sex, though much rarer in advanced years than at other periods of life, probably because of the large number who, at such periods, enjoy immunity.

The diagnosis of importance is between scarlatina and variola. Typical cases with a well-developed eruption can be scarcely mistaken for either, if the symptoms displayed are assigned their full weight. It would be useless, however, to deny the fact that atypical forms occur, which have again and again confused the most expert diagnosticians; and in all cases of doubt the prudent practitioner will refuse to decide as to the nature of the disease till the symptoms have, in the lapse of time, been fully declared. The resemblance between illy-developed measles and certain of the eruptions seen in varioloid, is in the highest degree striking; and the greatest skill, at a given moment of time, will in cases utterly fail to make a decision between the two. A distinctly crescentic character of the eruption, the presence of catarrhal symptoms, the continuance of the fever after the efflorescence is completed, the color of the eruption, and the discovery of the nature of the disease from which the contagion was derived, will all point in the direction of the truth. From scarlatina, measles is much more readily differentiated by the macular or papular elements of its eruption; by their color; by their appearance to a marked degree upon the face; and by the absence of the charac-

¹ See Sternberg's Magnan's "Bacteria." New York, 1884.

teristic sore throat and usually intense febrile access of the first named disease. From the various forms of erythema accompanied by fever, measles can always be distinguished by the irregularity of the temperature record, as well as by the character of the eruption. The distinction between rubeola and rötheln is given later.

The treatment of measles should be strictly limited to a careful hygienic attention to the invalid, including a restricted "fever diet," and the use of such medicaments only as are especially indicated by been followed by fatal results when employed as an antithermic, has the complications or accidents of the disease. Antipyrine, which has been already superseded in cautious hands by antifebrin, which may share a similar fate when better understood.

In the way of local treatment, the skin should be anointed with a bland, oily, or fatty substance, to relieve the pruritic sensations, especially after the sponging of the surface once daily with a weak alkaline solution, which may be used cool without fear of producing "repercussion" of the exanthem. The chamber of the invalid should be somewhat darkened for the sake of the eyes, but pure air should be constantly admitted.

The prognosis is, in general, favorable. All the complications named above increase, however, the gravity of the disease, which is also enhanced among men crowded together in camps, infants in public charities, pregnant women, the cachectic and greatly enfeebled from other diseases, very young infants, old men and women, and residents of islands that have been long unvisited by epidemics of the malady.

The disease has been demonstrated to produce itself by contagion two to four days before the appearance of the rash, while the power of such transmission is usually lost between the twentieth and thirtieth days after the exanthem is fully developed.

Rötheln.

(Rubella, German Measles, Hybrid Measles, French Measles.)

Rötheln is a specific, feebly contagious, febrile disorder, often epidemic, accompanied by a characteristic exanthem.

The disease has an incubative period lasting from fourteen to twenty-one days, followed either by the eruption or by brief prodromes lasting from a few hours to a single day. These are feelings of malaise, cephalalgia, articular pains, anorexia, and nausea. The occipital, cervical, and other glands may at this time become large and tender. After a pyrexia period, rarely lasting longer than a few hours and in many cases entirely absent, the eruption appears, occurring for the most part in the regions affected by measles; in the form of multiple, pin-point to small pin-head sized macules, but smaller than the lesions displayed in that disease, and decidedly lighter in color. The shade is rosy to a crimson-red, rarely lurid, never of dark mulberry or violaceous hue. This color will, at times, be perceptible beyond the line of the lesions, in a delicate halo, a

circumstance which strongly distinguishes the exanthem from morbilli. The lesions, moreover, are seldom arranged in crescentic outline, being more often grouped in roundish or oval patches. Often, indeed, the elements of the eruption are discrete and disseminated. The fauces are occasionally reddened in puncta. The eruption commonly fades in from one to two days, and there may or may not be slight resulting cutaneous desquamation.

The rash is to be distinguished from that of measles by the recognition of the features described above, particularly by the color, contour, and date of occurrence of the exanthem; the transitory character of the fever when the latter is present; and the rapidity with which involution of the disease progresses. By the temperature record alone of the patient, it may be differentiated from scarlatina, though the rash is dissimilar in the two diseases. It is also not to be confounded with the erythematous affections of the skin. One of the most striking characteristics of the disease can be best recognized in a ward filled with children, all of whom are simultaneously affected with the disorder. That characteristic is the remarkable mildness of the phenomena displayed in every case. The author has had under observation at one time twenty little patients all exhibiting the exanthem, not one of whom presented the peculiar facies of the sufferer from measles.

After an exhaustive study of this disease, Atkinson¹ concludes that while its characters are so defined as to justify a reasonable certainty in its diagnosis, it has no symptom that is not often assumed by measles.

The disorder should be treated by rest in bed, a supply of fresh air, and the usual diet of fever patients. Medication by drugs is almost never indicated.

Scarlatina.

(Scarlet Fever, Scarlet Rash.)

Scarlatina is a specific, contagious, febrile disorder, characterized by a cutaneous exanthem, and by involvement of the throat and other bodily organs.

The period of incubation of scarlet fever varies between twenty-four hours and a month or more, the average duration being about eight days. The reason of this wide variation is to be sought, not in any changeability in the mode of evolution of the disease, but in the fact that its poison is less volatile and less rapidly dissipated than is that of measles, the result being that it may remain potential for longer periods in connection with articles through the medium of which it is transferred from one individual to another. This incubative period, like that described in connection with measles, may be quite unproductive of physical symptoms, or be associated with an ill-defined malaise.

The prodrome of the disease in typical cases, is marked by the occurrence of a rapid and bounding pulse, an exceedingly dry skin,

¹ Amer. Journ. of the Med. Sci., 1887.

and a characteristic sore throat. When examination of the mouth is made, the tongue is seen to be thickly coated, and its filiform papillæ reddened and prominent, producing the so-called "strawberry appearance." The velum, pillars of the fauces, tonsils, and all exposed mucous surfaces are engorged, tumid, reddened, and often covered with deep reddish puncta, which unquestionably represent hyperæmia of the perifollicular tissues. Thirst is great, and deglutition often in the highest degree painful. In severe cases, the mucous surfaces named may speedily exhibit finger-nail to pigeon's-egg sized, ashy ulcerations with a lurid halo at the periphery. In children, there may be syncope, delirium, convulsions, vomiting, or, when the poison has been intense, fatal results from shock of the nervous centres. This prodromal period usually lasts from twelve to twenty-four hours, though it may be prolonged for two days more. In this respect scarlatina is markedly distinguished from measles. This stage is terminated by the appearance of the exanthem, but the fever persists without abatement after the explosion; and the other symptoms of the disease are then in no wise ameliorated.

The eruption in scarlatina usually spares the face, however much the latter may display two damask-colored cheeks under the febrile flush, become tumid with the acceleration to it of the blood pumped through the throbbing carotids, or even exhibit a few scanty lesions upon the forehead and temples. About the mouth, the integument is always pallid. This is far different from the picture presented in measles. The eruption is first seen in the form of light or deep red, pin-head sized puncta, so closely agglomerated as to produce upon the eye the impression of a diffuse reddish blush. It is first seen about the neck and clavicular regions, but rapidly spreads to the trunk and extremities, including the dorsal surfaces of the hands and feet, attaining complete development in the course of the second day of the eruption. It is then of a distinctly scarlet color, whence the disease has its name in the Latin, English, and German tongues, a coloration frequently compared to the appearance of a boiled lobster. Upon the limbs it is often developed in punctate form, while the occurrence of a diffuse scarlet blush is most distinctly perceived by the eye in the examination of the trunk. Here it is seen to fade under pressure; and the finger-nail drawn rapidly over the surface of the skin is followed by the formation of a whitish line, which persists for an instant, a time sufficient to enable one to describe a letter upon the skin. This period of efflorescence lasts for from one to two days to an entire week, during which, as stated above, the febrile and other symptoms continue unabated.

The rash usually persists at its maximum of development for from one to three days, the concomitant symptoms continuing without noticeable abatement. Among the latter may be named the occurrence of albumen in a urinary secretion of diminished specific gravity, with occasionally the presence of epithelium recognizable under the microscope as derived from the lining membrane of the uriniferous tubules of the kidney.

Having attained its apogee, the eruption in favorable cases begins to fade, the part first affected exhibiting earliest a lighter shade, while the other pathological phenomena diminish in severity, the sore throat, especially in ulcerated conditions, alone persisting. In from four to ten days longer the eruption disappears, leaving a brownish-yellow pigmentation of the surface; and simultaneously the other symptoms of disease vanish.

The desquamation which then ensues, as convalescence progresses, is general and often proportioned in extent to the severity of the preceding eruption, though it may be generalized after a well-nigh imperceptible exanthem. It is more pronounced and characteristic in scarlatina than in any of the other eruptive fevers. It may be superficial and furfuraceous in character; or the epidermis may fall in lamellated plates, the sheath of an entire finger, for example, with the nail; or that of the entire palm. In this way sheets, ribbons, and shreds of the horny layer of the skin may fall from its surface, and expose beneath a new and often tender epidermis. The hairs may be simultaneously shed. When this desquamation is finished, the stadium of the disease may be regarded as concluded, the entire period lasting in uncomplicated cases from a fortnight to a month or six weeks.

The complications, anomalies, and remote sequelæ of scarlatina are so numerous as to furnish a vast array of facts for the study of the pathologist. The reader need be merely reminded in these pages that the usual incubative and prodromic stages of the disease may be brief as to time, or so brusquely followed by eruptive phenomena as to be indistinguishable. The latter may also first occur upon the extremities or trunk, and later on the neck and over the clavicles; or at once cover the totality of the surface by a rapid explosion; or be extremely short-lived; or be altogether absent; or be unusually prolonged and visible for even a fortnight upon the surface of the body, appearing and well-nigh disappearing without appreciable cause. To a proportionate extent, the stage of desquamation may be precociously or tardily reached, and the exfoliating process be tediously prolonged and of intense type, jeopardizing in this manner the future of the convalescent prostrated by the fever which has passed, or the sympathetic fever which may thus be awakened.

The anomalies of the scarlatinal rash are numerous, but depend, in general, less upon a variation in the intensity of the poison than upon the physical condition of the patient. Thus, the affected surface may be slightly elevated above the general level; may exhibit irregularly disposed mottlings and maculations; may be characterized by the occurrence of miliary papules, minute vesicles, or purpuric lesions well defined against the general scarlet color of the skin by their violaceous shade, and due to cutaneous extravasation of blood. The rare bullous, pustular, and urticarial lesions which may appear upon the skin, are accidental, and bear no relation to the specific history of the disease.

Malignant anginose scarlatina is characterized by the gravity of

the throat symptoms. In such cases, a parenchymatous inflammation of the tonsils, velum, and fauces supervenes at an early period, with enormous tumefaction, involvement of the submucous tissue and neighboring glands, and ulcerative, suppurative, and even gangrenous results, which may prove speedily fatal. Gastro-intestinal disorders may also prove dangerous. An otitis externa, media, or interna, may perforate the tympanum, destroy the ossicles, induce caries of the mastoid process of the temporal bone, and prove fatal by the eventual production of meningitis or phlebitis.

Another severe type of the disease is that in which symptoms of typhus are pronounced (SCARLATINIFORM TYPHUS). Here the patient may perish within a few hours after being attacked and before the eruption appears, exhibiting comatose or convulsive symptoms indicating the profound influence upon the nervous centres of the intensely intoxicated blood; or the eruption may have time to appear, often livid, hæmorrhagic, or petechial in type, and be followed by albuminuria, meningitis, diarrhœa, coma, and death. Catarrhal and parenchymatous nephritis are justly dreaded during the desquamative period of the malady, when they may prove fatal after a relatively benignant manifestation of the disease in its prodromal and eruptive stages. To this sufficiently grave list of disorders which may complicate scarlet fever, must be added pneumonia, pericarditis, pleuritis, peritonitis, chronic purulent nasal catarrh, which may result in caries of the nasal bones, destruction of the cornea as a result of severe keratitis, persistent adenopathy of the subcutaneous glands, and malnutrition in many forms, which may so impair the vigor of the constitution as to leave the sufferer a physical wreck for the remainder of life.

The cutaneous lesions of scarlatina, like those of rubeola, depend upon hyperæmia and a moderate degree of exudation. The latter, when it occurs, is limited for the most part to the rete and papillary layer of the corium. The signs of the disorder are not apparent in the dead body, unless there has been exudation of blood and the consequent formation of petechiæ.

The disease is produced exclusively by contagion derived from the animal body affected with scarlatina, either mediately or immediately. It attacks individuals of both sexes and all ages, children and infants more frequently, the aged more rarely, probably in consequence of their respective conditions as regards immunity conferred by a previous attack, since, in general, the disease occurs but once in a lifetime. Individual idiosyncrasy must account for the cases in which unprotected infants exposed to the disease fail to receive it, a fact noted occasionally in all the exanthemata. The contagious element is volatile in its nature, and seems to be most active during the eruptive stage of the disease.

Rod-like bodies and mobile points have been found by Reiss, Coze, and Feltz in the blood of patients affected with scarlet fever; and injection of rabbits with such blood has proved fatal. Drs. Jameson

and Edington¹ have lately recognized and cultivated the "bacillus scarlatinae," measuring 0.4 mm. in thickness and 1.2–1.4 mm. in length, forming long, jointed, and curved, motile leptothrix filaments. Exceedingly interesting clinical facts as to the transmission of scarlatina through the medium of the milk of diseased cows have been lately determined by some of the local health boards in Great Britain. The disease at times follows injuries and surgical operations, due, as Atkinson² supposes, to diminished powers of resistance to the disease.

FIG. 31.



Micro-photograph of the edge of a small colony of the bacillus scarlatinae.

A. Central zone. B. Outer edge of growth.

The diagnosis is between measles, r  theln, erysipelas, and the erythemata; and is, in general, readily established. The sore throat, intense fever, punctiform scarlet rash reaching to the border of the inferior maxilla, and the distinct, whitish-yellow line traceable by the finger-nail passed rapidly over the surface, are all characteristic. In measles, the macular character of the rash, and its crescentic arrangement, in connection with the catarrhal symptoms, will usually be recognized. From erysipelas, scarlatina can always be distinguished by the absence of the peculiar, shining, smooth, or glazed and tumid condition of the affected area. From all other rashes, scarlet fever can be distinguished by the pyrexia symptoms and resulting desquamation.

Great care should be taken not to confound the medicinal rashes having a scarlatiniform appearance, with the specific disease under

¹ Brit. Med. Journ., June 11, 1887, and August 6, 1887.

² Journ. of Cutan. and Ven. Dis., vol. iv., October, 1886.

consideration. Thus belladonna, in doses of one minim of the tincture every hour to the extent of four doses, has produced an abundant scarlatiniiform eruption in children, a diagnostic point of importance in view of the fact that the drug named is employed popularly as a prophylactic against the disease. For the medicinal eruptions of this sort due to quinine and other drugs, the reader is referred to the pages devoted to dermatitis medicamentosa.

The modern treatment of uncomplicated scarlatina is purely expectant, after provision is made for an abundant supply of fresh air, disinfection, a proper regulation of food and drink, and the local use of baths, tepid or cool, for the purpose of reducing the bodily temperature. After each of these, the skin should be completely anointed with a fatty substance, such as cold cream, scented almond or olive oil; or, what is most commonly used in this country, vaseline. These inunctions are not only grateful to the patient, but, as the author has again and again demonstrated by the thermometer, reduce the temperature to a slight degree. All other treatment than that suggested above, should be limited to the special conditions presented in each case, and pertains to the field of general medicine. It includes the management of disorders of the eye, ear, throat, kidneys, and other viscera, whose involvement constitutes a complication of the disease.

The prognosis of the malady should always be established with reserve. It is largely based upon the relative intensity of the symptoms, the vigor and age of the subject, and the presence or absence of serious complications. Albuminuria is rarely absent, and not *per se* alarming; but anasarca and other evidences of profound interference with the renal function, are to be assigned due weight. In general, it may be said that a high range of temperature; early and ulcerative throat lesions; tardy development, rapid and untimely disappearance or undue prolongation of the exanthem; and its admixture with petechiæ to such an extent as to indicate extensive hæmorrhagic extravasation, are all formidable symptoms. Finally, it must not be forgotten that the mildest and simplest forms of the disease, after the fastigium is passed and convalescence actually established, may terminate fatally by the supervention of uræmia, cerebral paralysis, or even meningitis, consequent upon secondary changes in the middle or internal ear.

Variola.

(Smallpox.)

Lat. *varus*, a blotch.

Variola is a specific, contagious, and febrile disorder characterized, when unmodified, by the appearance in succession upon the cutaneous surface and occasionally also upon the mucous surfaces, of papules, vesicles, pustules, crusts, and cicatrices.

The variations of this malady as to the severity, character, and duration of its symptoms, are so great as to preclude its complete description within the limits here assigned to the subject. The fol-

lowing paragraphs are devoted to a brief sketch merely of its more commonly recognized characters.

The period of incubation of the unmitigated disease varies between ten and twenty days, occupying usually a fortnight. It is characterized by the peculiarities of that period recognized in all the exanthemata, few and insignificant or no evidences of physical discomfort. The prodromic stage is ushered in generally by a vespertine chill, succeeded by fever, with a temperature rising to 104° – 106° F., which is commonly associated with severe and characteristic pain in the loins, headache, nausea or vomiting, and occasionally, in young subjects, delirium and convulsions. The fever continues, with alternations of exacerbation and partial relief, or sensations of chilliness, on the second and third days. At the same time there may be facial hyperæmia and moderate dysphagia. Occasionally, before the cutaneous exanthem appears, minute reddish papules may be recognized upon the buccal membrane.

On the second and third days there appears, in some cases, especially in menstruating women and in young subjects, a cutaneous efflorescence, whose significance has been often misinterpreted and which has led to many errors in diagnosis. It is to Hebra that we are indebted for its distinct recognition as a cutaneous prodrome in variola. It has been termed **VARIOLOUS ERYTHEMA**, and **VARIOLOUS ROSEOLA**. Its recognition is a matter of special importance to the diagnostician, as many have been deceived respecting its nature and significance. It is characterized by the occurrence of irregularly disposed and distinctly outlined maculations, puncta, striæ, streaks, or a diffuse blush of bright or lurid reddish hue; the invaded integument being at times slightly tumid, and thus elevated above the general level. It may be also the seat of moderate pruritus. The blush may fade under pressure, but rarely does so perfectly. One cannot by the finger produce upon it a visible whitish spot. It occurs most often about the groins, hypogastric region, pubes, and inner faces of the thighs; and, examining these parts, the physician will usually discover the evidence, in adult women, of recent or present menstruation, or of the puerperal state. It occurs also about the axillæ, the extensor faces of the larger and smaller joints, and the lumbar and clavicular regions. Often a broad area of the integument in these parts may exhibit a sheet or mask of dull crimson erythema, upon which pin-head to bean-sized, dull-reddish papules may form, not losing their color under pressure, more rarely petechiæ, vesicles, and wheals. All these are precursory phenomena, and are not transformed into characteristic variolous lesions. They fade almost completely before the latter appear. Rarely, a few scattered papules may be distinguished upon the face and arms before the variolous erythema fades. Often the former in full development are even less profusely displayed in the site of the precedent efflorescence. The latter need not be necessarily regarded as a symptom of portentous gravity. The author has seen the entire surface of the belly covered with a uniform erythematous blush of dull crimson hue, confluent variola follow, and

the patient ultimately recover. The physician, then, in face of a deep red erythema of the regions named, especially of the groins, lower part of the belly, and thighs of a menstruating woman affected with high fever, nausea, vomiting, and lumbar pain, should invariably suspect the presence of variola.

The period of eruption is characterized, at its earliest, by punctiform, subcutaneous discolorations which photography alone can reveal. Commonly, after three days of prodromic symptoms, the patient will be seen on the morning of the fourth with the face and scalp covered by pin-head sized and larger, firm, conical papules, whose impression to the finger is compared by most English writers to the feeling of shot. Later, these develop upon the trunk and limbs; and in well-marked cases every portion of the surface of the body is invaded, including the palms and soles. The lesions may be surrounded by a narrow rosy areola upon the trunk. They may be unproductive of subjective sensations, or be slightly tender.

As a rule, there is complete defervescence when the exanthem appears, the patient experiencing such relief that if an adult has chanced not to view the face in a mirror nor to be informed of his appearance by those in attendance upon him, he will often regard himself as completely relieved of his three days' illness. In other cases, the febrile symptoms persist, with a lowered temperature.

During the first two days of the eruptive period, the papules increase in number, and become correspondingly agglomerated; while those of earliest appearance become transformed into vesicles containing a translucent serum, the roof-wall of many of them exhibiting an umbilication. This umbilication of the vesicle is characteristic, and slightly different from that observed in bullous and pustular lesions. The central depression is disproportionately large, and about it the yet undistended epidermis is often irregularly puckered or fluted. Even in this period, the lapse of a few hours will produce a lactescent appearance in their formerly translucent contents.

From the eighth to the twelfth day, the transformation of these lesions into pustules is effected, the process beginning, as in all the metamorphoses of the disease, in the vesicles of greatest age; those, namely, on the face and upper portions of the body. The lesions simultaneously enlarge till they are of the average size of a pea, and, being fully distended, rupture the centrally placed filament which held down the roof-wall, in consequence of which the umbilication of the pustules is lost. With this process of suppuration, is awakened the so-called secondary fever, a pathological process evidently not essential to the disease, as it does not occur in mitigated cases. It is born of the extensive process of suppuration occurring in the skin and other organs, and may be symptomatic, sympathetic, or septicæmic in character. It thus varies in different cases with the character and severity of the process by which it is excited, being transitory in mild cases, and in others terminating only with death. At this time the patient is usually in a most distressing condition. The skin of the face and other attacked regions is swollen,

thickly covered with pustules, and the features indistinguishable in the tumid and closed lids, the œdematous lips, disfigured nostrils, and pus-obstructed mucous outlets. Deglutition becomes painful and often impossible; the saliva flows from the lips; and the mucus of the nares dries with the pus upon the exterior of the visage. The pustules recognized upon the integument are represented also in the gastro-intestinal tract. In an autopsy of a patient dead at this stage of the disease, made by myself in company with Dr. McGill, of the United States Army, during the late civil war in this country, we discovered the entire canal from the mouth to the anus, as also the genito-urinary and respiratory passages, completely covered with closely agglomerated and well distended pustules. The career of those within the mouth can be usually studied by observation with the eye. In this situation they rapidly lose their epithelial roof-wall by reason of the heat, moisture, and friction to which they are subjected, and then exhibit a reddened and excoriated surface, over which there is reformation of the epidermal layer. Gangrenous complications are rare.

Between the thirteenth and fourteenth days desiccation begins, and is usually completed within from ten days to a fortnight afterward; the pustules rupture, and the exuded pus concretes into yellowish and brownish, rarely blackish crusts, or the latter are formed by the desiccation of the entire envelope and contents. The pulse usually at the same time diminishes in frequency; a secondary deferescence occurs; the tumefaction of the integument decreases; and at times the peculiarly characteristic, and often intolerably fetid odor of the patient is less perceptibly exhaled. In from four to six weeks the course of the disease is completed. The immediate traces of the eruption are purplish and violaceous pigmentations, which slowly disappear. When cicatrices result, they are slightly depressed, dead-white, lustrous, usually symmetrical in disposition, and most distinct upon the surfaces exposed to the light and air, as the face. Though persistent, they are rendered somewhat less deforming in the progress of years. When closely set together, they produce a characteristic ridged and corded appearance, due to the elevation of narrow bands of unaffected integument between the depressed surfaces of scars.

The several departures from the pronounced type of the disease described above, present variations differing widely from the most benignant forms. Brief reference only can be made to these.

VARIOLOID, whether occurring after vaccination or not, is a modified form of the disease. With it should be classed all those forms of the disorder occurring in the human subject, and described by authors under the title of "Swine-pox," "Horn-pox," etc. In these cases, there may be severe prodromic fever and a scantily developed exanthem; mild fever, abundant exanthem, and rapid involution of lesions; abortion of the latter in any of their several stages from papule to crust; absence of secondary fever; transmission of the

disease in a mild or mitigated form, from one individual to another, so that an entire community, vaccinated and unvaccinated alike, may suffer from an epidemic disorder of this moderate grade without the occurrence among them of a single case of typical variola. It is scarcely necessary to add that the patient with varioloid, especially during an epidemic, may transmit to the unprotected a malignant form of the disease.

Much more formidable, viewed from every standpoint, is HÆMORRHAGIC VARIOLA, fortunately rare and too often confounded in the past with "black measles." When cutaneous hæmorrhages occur during the course of smallpox, they do not necessarily indicate that the case is one of the so-called varioliform purpura, since these may be accidents of the pathological process. In this malignant form of the disease, against whose ravages vaccination seems to present no barrier, the prodromic stage is followed by a deep purplish redness of the surface which is characterized by pin-head to split-pea sized, firm, closely set, papular lesions, suggesting the occurrence of measles in a peculiarly severe form. The febrile, nervous, and other symptoms of the disease are proportionately intense. Ecchymoses appear upon the conjunctival membrane. Gradually the color of the exanthem, which at first disappeared under pressure, refuses thus to yield, and assumes a bluish-black shade. Ecchymotic patches may be intermingled with these, rapidly widening to palm-sized and larger areas. The mucous surfaces share in these colors, being also infiltrated with effused blood; and the muco-cutaneous orifices are crust-covered and exhale an extreme fetor. Blood may escape from the bowels, bladder, mouth, and vagina. Signs of grave systemic and visceral complications are always present. Vesiculation, pustulation, and the typical transformations of the variolous lesions are all wanting. In the few cases observed by the author, death has always speedily supervened, either from shock, coma, hæmorrhagic infarction of the lungs, or rapid exhaustion. Intermediate forms between hæmorrhagic and true variola are described, in which the pustules occurring in the latter form of the disease merely fill with blood in consequence of accidents possessing a purely local significance.

The CONFLUENT is another severe form of variola, less malignant, however, than that just described. It is characterized by intensity of the prodromic fever, which often scarcely abates with the appearance of the exanthem. The latter is developed in deeply implanted, firm papules, closely set together, succeeded by vesicles and pustules, which, as they enlarge, fully occupy the entire surface of the integument, and accomplish a perfect coalescence. In well-marked cases there is scarcely a pin-head sized area of the entire surface of the body which is not invaded. The tissues become enormously œdematous; the deformity of the face renders the features indistinguishable. Hæmorrhagic pustules and even patches of a gangrenous pulp may be intermingled with the sheets of suppurating surface. Phonation, respiration, and deglutition are proportionately impeded or absolutely subverted by the tumefaction and suppuration of the mucous

membranes of the respiratory and gastro-intestinal tracts. When the patient survives till the stage of desiccation is reached, the body presents an aspect as revolting as that ever displayed by a living being. A thick, brownish, or blackish-brown mask envelops the swollen head, trunk, and limbs; and the odor exhaled from the body is intolerably repulsive. All the systemic phenomena are proportionately grave and accompanied by one or more of the complications of the malady, pneumonia, pleuro-pneumonia, albuminuria, diarrhea, various motor and sensory paralyses, subcutaneous furuncles, and abscesses. The eyes may suffer from pustular and ulcerative changes in the conjunctiva, cornea, and deeper tissues, with resulting inflammation of every grade to panophthalmia, and resulting loss of vision. Often the patients, with surprising powers of resistance, will survive till extensive sheets of crusts have fallen from the surface, and then perish slowly in a typhoid condition with low remittent or continuous fever. Every such case does not, however, conclude fatally. The author has seen children rally from the severest form of confluent variola, and enjoy afterward a vigor which illustrates well the wonderful recuperative energy of the natural forces under the most adverse circumstances.

FIG. 32.



Vertical section of pustule at the beginning of pustulation. *a*, umbilication at the site of an excretory canal; *b*, reticulum within the epidermis; *c*, reticulum of smaller meshes containing lymph- and pus-globules. (After RINDFLEISCH.)

Variola is always produced as the result of mediate or immediate contagion. It is a disease which is both contagious and infectious, being transmissible by volatile emanations from the victims of the disease. It is also artificially inoculable. When transmitted by the latter process, its period of incubation is somewhat shortened, and often its successive manifestations become then less formidable. The history of inoculated human variola has, however, received but little attention during the last decade, in which the practice has been

properly forbidden by law. The disease is, to a certain extent, transmissible from man to the lower animals, and the reverse. It attacks individuals of both sexes and all ages, including the foetus in utero, which may be ushered at an untimely hour into the world macerated or recently dead and covered with the lesions of variola. The disease in the larger cities is decidedly more frequent in winter than in summer, possibly because in the colder months the opportunities are greater for spreading the contagion in artificially heated dwellings where numbers of individuals are crowded together. Islanders long unvisited by an epidemic and unprotected by vaccination, may suffer equally in the summer season.

FIG. 33.



Vertical section of one-half of an undeveloped pustule. *a*, old epidermis; *b*, epithelia of rete above the alveoli; *c*, new formed epidermis; *d*, alveoli filled with pus-globules; *g*, flattened and infiltrated papillæ lying beneath the pustule. (After AUSPITZ and BASCH.)

The parasitic nature of variola has not yet been demonstrated. Coze, Feltz, Baudouin, Luginbühl, Weigert, Hallier, and Cohn have recognized microorganisms, both bacteria and micrococci, in the blood of variolous patients. None of these have as yet been utilized in the production of the disease; but Cohn¹ regards these parasites as a twin race of the micrococcus vaccinae discovered in vaccine lymph.

The difficulty attending the diagnosis of variola in its prodromic and earliest eruptive stages, from rubeola, has been already mentioned. The general demand, indeed, upon the physician for an exact and definite diagnosis of every case before its typical development, is founded upon an erroneous conception of possibilities; and the sooner this is generally recognized, the better for all concerned. A delay of even a few hours will often verify or remove a suspicion, and the author is confident that he has seen fully as much mortification on the part of the physician and damage to the best interests of the patient, result from an error in the one direction as in the other. The

¹ See Magnan, loc. cit., p. 411.

wisest course in every doubtful case is to admit the doubt and to visit the patient frequently for the purpose of observing the development of the disease till that doubt is removed. Typical cases of variola are recognized with ease from the character of the symptoms presented. Syphilis and acne are always distinguished by the absence of fever and their relative chronicity. Two cases of suddenly occurring medicamentous acneiform rash, have come under the author's observation, where a diagnosis of variola had been previously made. In each, the absence of a prodromic stage and the subjective sensation excited, were sufficient to point to the nature of the disease when considered in connection with the peculiar character of the lesions.

The prognosis of variola is largely dependent upon the degree of protection conferred by previous vaccination. This aside, the age and vigor of the patient, the presence or absence of an epidemic of severe or mild type, the extent of the eruption, and the character of the surroundings of the patient, are elements of prime importance. Very young and aged subjects, women pregnant or in the puerperal state, and, as Hebra has shown, those who have suffered from a previous attack of the same disorder, are all unfavorably related to the final result. Confluent and hæmorrhagic forms of the disease are, naturally, the gravest. Unmitigated variola is, under the most favorable circumstances, one of the greatest scourges of humanity; and as such will probably always destroy a frightful proportion of its victims. At the same time, the conscientious physician needs to be impressed with the fact, that under the most discouraging circumstances, the patient, disfigured to the greatest extent by an envelope of blackened crust, and in a state of extreme physical prostration, with many of his bodily functions almost completely suspended, may even from the midst of such peril be won back to life and vigor. The assiduous attentions of a gentle nurse, guided by the inspiring presence and counsels of a physician who is himself fearless of the malady, will often achieve the result. Upon the latter point, it is interesting to note, that physicians in active practice who do not hesitate to expose themselves freely to the disease in the discharge of the duties of their profession, rarely suffer in their own persons. In the course of four epidemics, during which the author has had the opportunity of observing the relations between many physicians and their patients, he has never known one of the former to be stricken down in the actual performance of his sacred office among the victims of the pest.

Varicella.

(Chicken-pox).

Varicella is a contagious, febrile disorder of benignant and mild character, accompanied by a vesicular exanthem.

The disease has an incubative period lasting for about a fortnight, after which there is occurrence of malaise, chilliness, and languor. The patients are usually children who may suffer thus from fever of a moderate grade lasting from a few hours to two or three days, after

which defervescence is commonly complete. With its onset, or without it, the rash appears, first on the head and trunk, in the form of rosy maculæ or slightly elevated lesions lacking the characteristic "shot-like" feeling of the variolous papule. These rapidly become vesicular, the lesions being pin-head to pea-sized, limpid, superficial in situation, differently shaped and very rarely umbilicated, puckered, or "fluted" as in smallpox. They appear in successive crops and are often surrounded by a faint halo. Their contents become cloudy or lactescent rather than puriform, and desiccate often as early as the second day, forming thin, light, superficial crusts. The lesions may be abundant in one region, as, for example, over the back or the chest; but are practically never both abundant and generalized, and never confluent. Like the variolous lesions, they extend at times to the mucous surfaces of the eyes, mouth, and genital regions. Occasionally they are productive of pruritic sensations. Often the course of the disease is so mild and the exanthem so slight as scarcely to attract attention. Cicatrices result only in places, chiefly the face, where the lesions have been subjected to local irritation.

Diagnosis.—It is well known that a number of German authorities, following Hebra, have given assent to the doctrines taught by the latter that varicella is only a mitigated form of variola. That doctrine is offensive to American and English physicians, who in practice find it vastly wiser to distinguish carefully and exactly between the diseases in question. The settlement of the discussion may well be relegated to a date when the probable parasitic nature of both disorders can be exactly determined.

In variola, the invasion period, of relatively fixed limits, the speedy transformation of the lesions into minute, firm papules, their early appearance on the exposed parts of the face and wrists, the age of the patient, the thermic variations, the prodromic rashes, and the speedy transformation of the papules into umbilicated vesicles, are all important diagnostic points. In varicella, the trunk usually exhibits the greater number of lesions, which appear also in successive crops. Beside the characteristics of the cutaneous lesions, the catarrhal symptoms of measles and the sore throat of scarlatina, will point to the nature of these disorders. Fox's impetigo contagiosa is to be very carefully distinguished from varicella, since the two affections occur at times side by side in one hospital ward; and occasionally the former succeeds the latter. The lesions of impetigo contagiosa are often larger, generally more persistent, the crusts bulkier, and the patients may be of a more advanced age.

The treatment of variola should, in general, be limited to the indications presented in each case. No remedies can be employed which have the least power to abort the disease. Kaposi calls attention to the striking fact in this connection, that in syphilis, for many of whose manifestations mercury is a specific, we find a disease whose second incubative period is measured by weeks, and yet neither by excision of its initial sclerosis nor by mercurials can the subsequent manifestations of the disease be completely prevented. Certainly, no

specifics are recognized as of value in variola. The patient should be kept in a relatively darkened room with an abundant supply of fresh air of a uniform temperature; and antiseptic solutions should be constantly at hand into which all the ejeeta are immediately received. He should be given ice when this is grateful to the palate, cool water *ad libitum*, and his strength should be sedulously supported by a liquid animal diet. The body may be sponged with or bathed in cool or tepid water, as often as is grateful to the patient. In severe or confluent cases, the constant immersion of the body in the continuous warm water bath as practised in Vienna, is followed by the most brilliant results in hastening the desiccation and fall of the crusts and the subsequent repair. A bath of this character given for merely two or three hours in the day, is often of great value. With and without these external measures, gargles of chlorate of potash, myrrh, honey, or carbolic acid, will be found acceptable to the mouth and palate. Indeed, the constant attention of an efficient nurse bestowing assiduous care upon the mouth, skin, and eyes, may be regarded as an essential part of all sound treatment.

As regards the prevention of pitting, it may be remarked that no measures of a therapeutic character will prevent the occurrence of a distinct cicatrix whenever pus has eroded or otherwise destroyed the integrity of the papillary layer of the corium. Every effort, therefore, should be exerted to prevent the extension of the suppurative process to the true skin. The following are measures which have approved themselves to the author as of practical value: first, the sick-room should be moderately darkened, and yet amply provided with fresh air; second, a solution of the hyposulphite of sodium (Squibb's is superior to the ordinary preparations in the market) should be administered night and day in the dose of from fifteen to twenty grains (1.-1.3) every three or four hours. Certainly the variolous lesions pursue a milder course under this internal treatment, and even, in cases, the vesicles shrivel before pustulation is fairly begun. Third, the skin of the face should be anointed with a bland fatty substance such as vaseline, almond oil, or fresh lard, and over this may be laid silk-enveloped compresses, dipped in tepid and weak solutions of carbolic or boric acid, or thymol. The author prefers the anointing of the surface before the application of the lotion, but, when more grateful to the patient, the skin may be constantly moistened with the aqueous lotion alone. Here, again, the assiduous attention of the nurse is a matter of importance. The author has never employed the powder of iodoform topically in these cases, but believes that it might be often so used with advantage.

The edges of the eyelids should be daily anointed with freshly prepared cold cream. Puncture of the cornea may be required for the relief of hypopion. Diarrhœa and other symptoms of visceral derangement should be relieved by appropriate medication. As a rule, the administration of narcotics for the relief of pain is objectionable. Throughout all, the strength of the sufferer should be supported by a generous use of animal broths or milk; and in typhoid conditions a judicious employment of stimulants may be necessary.

Vaccinia.**(Cowpox.)**

Vaccinia is a specific bovine fever, accompanied by a vesicular exanthem, which can be transmitted to man by inoculation.

The limits of these pages forbid a discussion of the interesting questions which concern the relations of cowpox as it occurs spontaneously in the milch-cow, to human variola. A careful collation of the results obtained by the large number of vacciniculturists of later days, renders it clear that it is a matter of great difficulty to transmit variola from man to the heifer; that where this rare result is obtained, the lymph derived from the lesions on the udder or the belly of the latter is liable to produce variola when retransmitted to man; and that spontaneous cowpox alone seems to furnish a lymph which is safely inoculable in generations to the human race.

Of greater importance is it to note here that, either by arm-to-arm vaccination, as was formerly extensively practised, or by the use of the animal virus which has of late been well-nigh exclusively employed in this country, there has been conferred upon millions of human beings a degree of protection against variola whose value is beyond estimate. In both methods, the lymph is derived originally from the female of the bovine race, preferably in the puerperal state; and its sources are the vesicular lesions of vaccinia spontaneously arising or artificially cultivated about the teats, udder, and adjacent parts. The introduction of this lymph into the skin of the human subject, is termed vaccination.

The simple operation of vaccination is performed in many ways, but that which especially commends itself to the prudent man is the method which eliminates to the largest extent the possibility of transmitting any other contagious disease than the one intended. With this object in view, no better instrument can be devised than a clean needle, one which has been properly disinfected and not previously employed for any purpose. The skin of the part selected for vaccination being subjected to slight tension by the left hand, the vaccinator should scratch or scrape off the epidermis with the needle, held in the right, by a series of parallel and crossed strokes, so as to make three or four superficial erosions, at a distance of three or more inches apart. Each of these multiplex wounds should have the size of the little finger-nail, and should in no case bleed, but merely ooze with serum slightly tinged with blood. At such points the lymph is to be thoroughly and slowly rubbed in, whether it be supplied in a dry form upon ivory points which have been dipped in the serum oozing from vaccine lesions upon the heifer, or be a fluid obtained by crushing and dissolving in water the crust taken from the similar lesions on the arm of a child previously unprotected and recently vaccinated. In public charities, where, for the most part, such procedures are practicable. It is usually sufficient to dip a needle into the lymph flowing from the arm of the vaccinifer and to plunge it, thus charged, once or twice into the part selected for the operation.

Between the third and fourth days after a successful vaccination of the unprotected, a light reddish, pin-head sized papule rises at each inoculated point. Between the fifth and sixth days, it becomes transformed into a translucent, well-distended, occasionally umbilicated vesicle. This, when single, may attain the size of the finger-nail. Springing from the multiplex abrasions described above, a minute papule usually forms at each point of intersection of the crossed lines produced by the scratching with the needle, and the subsequent vesicles coalesce, forming thus a compound lesion of rather peculiar aspect. It appears often as a small coin-sized plaque, elevated to the extent of a line or more beyond the general level, with a rim formed of numerous discrete or confluent vesicles, which in either case are closely set together. The compound plaque seems to develop afterward as a single lesion, its centre being depressed. After the ninth day, the fluid becomes opalescent, and desiccates in a reddish-brown crust, which, examined in section by a good light after it is completely dried, exhibits a smooth, homogeneous, shining appearance, with a color having the shade of amber.

Fully as important as any of these metamorphoses of this lesion, is its rosy-reddish areola, in the absence of which some authorities declare that there is not proper protection. It completely encircles the compound vesicle in the form of a halo having a diameter of several inches, the tissue it invades being often slightly tumid. When the pathological process in the focus of this areola is intensified, either as the result of the irritant character of the virus, or from extrinsic causes (undue exertion of the vaccinated part), the areola may spread extensively down the arm, or over the thigh or leg, and eventually cover a dense, brawny, and deeply reddened integument. Dermatitis, erysipelas, lymphangitis, adenopathy, and severe grades of inflammation of the subcutaneous tissues, may for similar reasons complicate the process, which may terminate by central sloughing, ulceration, slow repair, and the production of an atypical cicatrix. Ordinarily, the subjective phenomena are limited to a mild or annoying itching of the vaccinated surface; in other cases, severe burning pain, a feeling of tension, and even sympathetic fever may be aroused.

The acme of a successful vaccination is usually attained between the tenth and the fourteenth days, after which the symptoms of the disorder gradually subside, the crust falling, if undisturbed, in the course of the ensuing week. When "animal" virus is employed, the duration of each of these stages of the disease is usually somewhat prolonged.

The cicatrix, at first slightly reddened or pigmented, gradually assumes the dead white appearance of scars in general. When typical, it is slightly depressed, circular, not irregular, nor deformed by ridges, cords, or bands, and "foveolated," exhibiting a series of peripheral pits or depressions, each of which represents the site of a former minute vesicle of simple type. There is strong reason to believe that the degree of protection is based in part upon the multiplicity of typical cicatrices, and, in view of the rarity of variolous

patients with four such traces of successful vaccination upon the person, many are prejudiced in favor of the English method of producing multiple scars.

The complications of vaccination are due, first, to the character of the virus employed; second, to the character of the soil in which it is implanted; and third, to the external accidents to which the vaccine lesion is subjected. Respecting the first of these sources, there are few contagious diseases which may be transmitted by vaccination, beside syphilis. When this accident occurs, it may be due either to the fact of syphilis in the vaccinifer, or to the use of instruments soiled with infectious secretions. It is both asserted and denied, that the lymph from a typical vaccine vesicle in a syphilitic vaccinifer, will necessarily transmit syphilis, if it be accidentally commingled with either blood or the products of inflammation at the base of the pock. The demonstration of any such fact requires a mass of evidence exceedingly difficult to collect, inasmuch as the stage and intensity of the disease in the vaccinifer are elements which cannot be ignored in a decision of the question. When thus transmitted, it will be remembered that the vaccine lesion may complete its career during the incubative period of the initial sclerosis, whose existence at the site of vaccination is commonly declared later by induration, ulceration, pigmentation, and axillary adenopathy. The occurrence of a generalized syphiloderm before the chancre of vaccination is completely healed, is often the first symptom to arouse suspicion. Those further interested in the subject should study the cases collected and admirably illustrated by Mr. Jonathan Hutchinson,¹ of London. It should be added, that the popular impression regarding the frequency of this accident is greatly erroneous. The author has treated no less than nine physicians for extra-genital chancre of the fingers and eyelids, acquired during the discharge of their professional duties, meeting in his entire experience with but two unquestioned cases of syphilis transmitted by vaccination. One of these accidents occurred to a negro infant, who had a typical initial sclerosis of the arm following vaccination, with axillary adenopathy, and a subsequent characteristic generalized exanthem. In all such cases, the possibility that the syphilis might be hereditary, and its symptoms simply coincident in point of time with those of vaccinia, should not be forgotten.

Exceedingly dangerous is that virus, however good its early character, in which decomposition or putrefactive changes have occurred after exposure, in a liquid form, to the action of heat and the atmosphere. Vaccination with lymph thus changed has been rapidly followed by fatal results, in consequence of the supervention of pyæmia or septicæmia.

Complications of vaccinia, due to the character or predisposition of the tissues in which the virus is introduced by the vaccinator, are usually ascribed by the ignorant or prejudiced to the causes just considered. *Post hoc ergo propter hoc* is the sole logic of the uninformed.

¹ Illustrations of Clinical Surgery. Phila., 1875.

In this way almost all other ills of the human family have been in turn ascribed to "impurities" and "humors" introduced by vaccination. The language and arguments used in support of these positions have been as extravagant as they were unreasonable, and have borne fruit in the refusal of many physicians of repute to perform vaccination, and thereafter to assume the responsibility of all the subsequent ailments of the vaccinated. The cutaneous symptoms which may thus be awakened are numerous. It will be remembered that the contents of the typical vaccine vesicle are auto-inoculable, and that thus the scratching of young patients may produce an abundant crop of typical or torn vesicles upon the arms, legs, thighs, hands, and fingers. But vaccination may also awaken in the patient, as explained above, a latent syphilis, as also a list of cutaneous disorders not contagious in character. Thus an erythema (roseola vaccinia, vaccinola, etc.), eczema in many of its forms, and other exudative processes may be first aroused in the integument by the turbulence of a successful vaccination.

These rashes may become generalized, and even assume a formidable appearance. They may appear at any time from the second to the fourteenth day after vaccination. A scarlatiniform rash, diffused or in patches, is described by some authors as occurring in this way, accompanied by mild fever, and resembling German measles. Similarly generalized eruptions, resembling erythema multiforme, psoriasis, urticaria, impetigo contagiosa, varicella, and other cutaneous disorders, may appear for the first time within the limits named above. They usually disappear within a brief time after the vaccine vesicle has completed its involution, and may be followed by slight desquamation or pigmentation.¹

Very rarely vaccinia is followed by purpuric symptoms

Anomalies of the vaccine vesicle are occasionally noted as to its shape, career, and resulting cicatrix which it is difficult to explain. Thus, the papulo-vesicle may not exhibit an umbilicated centre, or may complete its course within unusually short limits; or a harmless ulceration may progress beneath its crust, requiring a week, or even more, for complete cicatrization. The so-called "raspberry sore" is explained by Robinson as resulting from coalescence of small papules, so as to form a pigmented tubercle. The scars resulting from many of these irregular and non-protective results of vaccination may in each direction form a typical cicatrix, being, on the one hand, small palm-sized, deforming, corded, and representative of large tissue-loss; and, on the other, feeble, irregular, and inconspicuous.

Lastly, the complications of vaccinia due to external accidents of the lesion are usually inflammatory in character. The excessive use of the vaccinated arm in labor, and of the vaccinated leg in walking, standing, and other exertion, may induce, as indicated above, every grade of dermatitis, and even ulcerative changes in the site of the

¹ An interesting paper on vaccinal eruptions was read by Dr. Gustav Behrend, before the Dermatological Section of the International Medical Congress, in London, August 5, 1881. (See a translation of his paper by Dr. Alexander, *Arch. of Derm.*, No. 4, 1881, vol. vii. p. 383.)

inoculation, as a result of the intensity of the process. For these accidents rest is essential, with the free use of a dusting-powder over the inflamed surface. In exaggerated cases, lotions of lead-water and opium may be employed. These conditions are usually relieved without difficulty, as soon as the part is put to rest. The atypical scar which results, seems to be in such cases as protective as others, if only the accident have occurred to a typically progressing lesion with distinctly perfect areola. Vaccine cicatrices are to be distinguished in anomalous situations from maculæ atrophicæ, the scars of syphilis, and of other scar-leaving disorders.

Micrococci have been recognized by Cohn in vaccine-lymph. These have been named micrococci vaccinæ, but their relation to similar organisms discovered in the blood and tissues of variolous patients has not yet been determined. Wolff¹ claims to have cultivated these organisms through fifteen generations. Strauss has demonstrated their existence in the vaccinal pustules of the calf.²

Lipp, of Gratz, reported to the International Medical Congress in London, that he had recognized great similarity, if not identity, between the micrococci of vaccinia and variola, which he had cultivated to the second generation, but had then been unsuccessful in producing inoculation effects. These organisms were always arranged in groups of four, or multiples of four.

Erythema Simplex.

Gr. ἐρύθημα, redness.

Erythema Simplex is a coloration of the skin in various shades of redness, temporarily disappearing under pressure, the lesions differing in size and shape according to the extent and degree of the hyperæmia by which they are induced.

Hyperæmia of the skin, due to increased velocity or amount of the fluid in the cutaneous capillaries, results in increased coloration of the integument. The shades of this color vary from a delicate pink or rosy hue to a dark reddish color. Thus, hyperæmiæ may be diffused or circumscribed, idiopathic or symptomatic, and due to active or passive congestion of the vessels.

Idiopathic Erythema.

ERYTHEMA TRAUMATICUM.—Here the redness is the result of friction, rubbing, pressure, scratching, and similar external contacts. It is observed, for example, in the part pressed by the pad of a truss; in the colored circle left about the leg where a tight garter has been worn; on the sides of the nose where pressure is exerted by a newly applied pair of eye-glasses. These traumatic hyperæmias are readily converted into exudative affections, if the traumatism be long continued. Intermittent pressure upon the skin permits restoration of

¹ Berl. klin. Woch., January 22, 1883.

² See Magnan, loc. cit.

the vascular equilibrium, and the skin responds to the demand made upon it, by increasing in thickness; continued pressure, on the contrary, admits of no such restoration; and the integument finally becomes thinner, and yields before the agent inflicting the injury. Inflammation resulting in ulceration may finally supervene.

ERYTHEMA CALORICUM.—Solar heat in excess and extremes of cold; very hot and very cold water; and other heat-conducting substances, are also sufficient to induce transitory redness of the surface. In the erythemata induced by solar heat especially, there is frequently an increase in the pigmentation of the surface, as in the production of freckles and “tan” in persons whose skins are reddened by the sun. The darker, brownish, and chocolate-colored stains of the hands and face are thus induced.

ERYTHEMA VENENATUM.—A number of chemical substances, dyes, and vegetable poisons are also capable of producing transient hyperæmia of the skin. Among these may be mentioned cantharides, capsicum, mustard, aniline, chloroform, ether, arnica, and several of the essential oils.

ERYTHEMA GANGRENOSUM.—Under this title several singular affections of the skin have been described, in which erythematous patches appeared and were followed by more or less extensive destruction of one or more of the several layers of the skin. T. C. Fox, in a description of the appearances in two cases under his observation, concludes that these are the symptoms of a feigned disease, or one produced artificially for the purpose of exciting sympathy, etc.

Symptomatic Erythema.

This may be of either active or passive form. A long list of physiological and pathological causes operating upon the system at large are capable of inducing active symptomatic hyperæmia of the skin. This may be generally diffused, or occur in surface mottlings and markings of various sizes and shapes. Thus, the skin of the face may be intensely reddened in a paroxysm of rage; and that of the limbs of a teething child covered with rosy maculations in consequence of the reflection to the surface, through the medium of the nervous system, of the irritation induced by a tooth. In consequence of the rosy tint assumed by several of these rashes, they have long been termed “*roseola*,” a name which to-day is held to describe a symptom rather than a disease. The word “*roseola*” is still associated in the minds of many with the earliest syphiloderm; but that eruption is now designated by the best authors as the erythematous or macular syphilide.

Several of the severer constitutional maladies betray their morbid influence upon the central nervous system by a speedy efflorescence of this character. A lurid erythema of the axillary or inguinal region may precede by several days the eruption of confluent variola.

Cholera, cerebro-spinal meningitis, enteric and other fevers are thus at times accompanied, preceded, or followed by rashes. A study of these is of the utmost importance to the diagnostician. Children who are really susceptible to the disease are often supposed to possess an immunity from scarlatina, as the symptomatic erythema they previously displayed was misconstrued.

Symptomatic passive erythema is usually characterized by a cyanotic, purplish, or darker hue of the integument, resulting largely from accumulation in excess of carbonic acid in the blood. The temperature of such skins is either normal or below the normal standard, as in those cases where gangrene ensues. A long list of conditions may be named in which these symptoms may be noted, including derangement of the bloodvessels from imperfect innervation, direct pressure, or disease of the heart or vascular walls.

These erythemas may be either circumscribed in area or general. The term "livedo" is applied to circumscribed regions of passive erythema. Sometimes the nose, cheeks, fingers, or toes exhibit this form of disease. The so-called symmetrical gangrene of the fingers belongs to the same category. Cardiac cyanosis, or morbus cæruleus, is a name given to a generalized dark blue discoloration of the entire surface, due often to continued patency of the foramen ovale.

Diagnosis.—If an erythema of the surface exists and is manifestly unattended by exudative symptoms, the recognition of the condition of the skin is not difficult. A more serious problem, however, concerns the significance of this symptom when it occurs in connection with grave constitutional maladies. A high temperature, severe lumbar pain, great gastric or intestinal irritability, coryza, and injection of the ocular conjunctivæ, are symptoms which should always put the practitioner on his guard in pronouncing upon the nature of an erythema.

On the other hand, patients in a state of alarm frequently seek relief for an idiopathic erythema, of the nature of which they are ignorant. Here the locality, contour, and general appearance of the eruption, taken in connection with the history of the case, will usually suffice to establish a diagnosis.

Treatment.—The symptomatic erythemata are usually of such trifling significance in comparison with the constitutional disorder by which they are occasioned, that the removal or management of the latter becomes of the higher importance. The idiopathic erythemata are usually relieved at once by the suspension of the cause. Occasionally cold water, weak spirit lotions, dilute solutions of carbolic acid, or one of the dusting powders may be required. The ordinary rubber, adhesive, or lead plaster, may be applied to erythematous surfaces where the friction must necessarily be continued (surgical appliances, orthopædic apparatus, etc.), and in those produced by constant pressure (nates and sacrum in low fevers or surgical confinement), it should never be forgotten that the hyperæmic is also a weakened skin. Here stimulating applications may be needed, alcoholic, camphorated, etc., with a view to the restoration of the tone of the weakened capillaries.

Erythema Intertrigo.

Lat. *inter*, between; *terere*, to rub.

Erythema Intertrigo is an hyperæmic condition of those cutaneous and mucocutaneous surfaces which are in constant apposition, and between which there is an hypersecretion or retention of sweat.

Symptoms.—The erythema which is limited to portions of the integument which lie in contact with each other, is subject to certain modifications. The sites of such contacts in the human body are the axillæ, the groins, the cleft between the nates, the inter-mammary and infra-mammary spaces in women, the superior and inner faces of the thighs, the scroto-femoral and the labio-femoral clefts in the sexes respectively, the flexures of the joints, and in especially fat individuals, all those parts where the integument is thrown into fleshy folds, as about the neck of infants, and even over the crest of the ilia in fat women. In these localities the disorder, beginning as an erythema traumaticum, proceeds by its irritative effects to stimulate the secretion of sweat, which is freely poured out between the adjacent folds of the skin, and may there be temporarily imprisoned. The surface, heated and reddened, is also somewhat macerated by the effused perspiration; and the latter, when chemically altered, as it is frequently under these circumstances, adds still further to the original disorder. The ground is thus well prepared for an exudative process, but the disorder may be limited to mere hyperæmia with hyperidrosis, and disappear before the supervention of actual inflammation.

The sensations produced are those of heat and tenderness. When the parts in contact are separated, the surfaces are seen to be reddened and chafed. Here and there very superficial abrasions of the macerated epidermis become evident. One such is always especially significant. It is the linear and superficial excoriation which marks the line of deepest contact of the two apposed surfaces of the skin at the bottom of the angle formed by the two. An offensive odor usually proceeds from the part in consequence of the fluid secreted. Fox, of London, has called attention to the fact that the secretions of an intertrigo stain, but do not stiffen the linen of the patient, and thus differ from the serous fluid poured out in an exudative dermatitis.

Etiology.—The disease is chiefly induced by heat, friction, and moisture—these causes occasionally coöperating. The heat may be merely that of the natural temperature of the body, or it may be increased by that due to season and climate. The friction also may be merely that originating between the surfaces in apposition, or may be increased by clothing or other articles worn next the skin. The moisture which produces maceration of the epidermis is that originating in the perspiratory follicles, their secretion being doubtless stimulated by the heat and friction. The interchange of operation of these three factors is, lastly, shown by the fact that the friction, if

severe, is capable of increasing the temperature of the part to which it is applied.

As aggravating causes may be named other physiological secretions and excretions, retained in contact with the surfaces affected with an intertrigo. Thus, the feces of the infant left in contact with its nates upon the napkin; the urine of the old man with paralysis of the bladder, or with "overflow" from prostatic disease; the milk of the nursing woman dribbling over the breast to the infra-mammary region; retained lochial, menstrual, and similar discharges, are all efficient in this regard, and particularly apt to induce that form of dermatitis to which the intertrigo then plays a subordinate part. Occurring in fleshy persons, these conditions find their most fertile field.

Diagnosis.—The recognition of a simple erythema intertrigo is a matter of no difficulty, if regard be had to the exciting and aggravating causes enumerated above, and to the special localities where such hyperæmia generally originates. If an eczema or dermatitis supervene, the fact will appear from increased subjective sensation (usually a severe itching), from an infiltration of the affected integument, and from the appearance of those lesions and discharges which are significant of these forms of inflammation of the skin.

The special sites of preference of an intertrigo are those also of the disease named by Hebra "*eczema marginatum*," or ring-worm as it occurs upon the parts of the thighs covered by the "reinforced" patch in the trousers of the cavalryman. The disease is properly named, *tinea circinata cruris*, though it is found also about the axillæ, buttocks, and groins of both sexes. Here the disorder is, however, of the exudative type, and, moreover, is distinguished by a characteristic "festooning" of the elevated border marking the advancing limit of the disease. The microscope, by revealing the existence of a fungus, will, of course, put an end to any doubt. In intertrigo the most marked evidence of disease is to be distinguished in the deeper parts of the cleft between the two adjacent skin surfaces, while in *tinea circinata cruris* the growth of the parasite is most active at the advancing border of the patch, which is, moreover, perceptibly elevated above the sound skin.

Treatment.—Erythema intertrigo is an exceedingly common affection of the skin, and occasionally proves of great annoyance to those suffering from it. The skill of the young practitioner is often tested early in his professional career by his management of just such cases; and not a little may depend upon the success with which he may be rewarded.

The affected surfaces should be gently cleansed by ablution with soap and warm water, and the offensive odor of the secretions remedied by the addition to the water of a weak solution of carbolic acid, or the dilute liquor sodæ chlorinatæ. The parts are then to be carefully dried with a freshly laundered towel or soft handkerchief, and afterward one of the dusting powders very thoroughly applied. To be of service, these must be quite impalpable, and, if compounded by

a druggist, be sifted through millers' fine silk bolting-cloth. The articles chiefly used for this purpose are: bismuth, starch, zinc oxide, French chalk, lycopodium, and, when an anti-pruritic effect is designed, camphor. Combinations of several of these are at times effective. The formula of McCall Anderson is highly esteemed:

R. Zinci oxid. pulv.	℥ss;	16	
Camphore pulv.	℥jss;	6	
Amyli pulv.	℥j;	32	M.
Sig. Anderson's dusting powder.			

The following is the formula for a dusting powder recommended by Klamann.¹

R. Talc. venet. pulv.	℥v;	20	
Acid. salicyl.	gr. iij;	2	
Magnes. ust. subtil. pulv.	℥jss;	5	M.
Sig. Dusting powder.			

The "Oswego gloss starch" and the "corn-starch farina" sold by most of the grocers in this country, are finely bolted, and answer well alone, or in combination with some of the other articles named. The chief objection to the starch-containing powders is their tendency to form "cakes" or rolls when wetted with sweat, these masses further irritating the tender surface of the skin. Such an objection does not apply to lycopodium, which not only under the microscope exhibits no salient angles, but on account of the oil it contains is not miscible with water.²

The affected surfaces of the skin must also be separated in order to prevent further friction. A thin strip of lint, or the antiseptic cotton now in the market, may be used for this purpose; and must be pushed well up to the deeper portions of the cleft where the secretion chiefly forms. Occasionally, it will be found useful to anoint this absorbent layer with cold cream or vaseline. Where an astringent effect is desired, the lycopodium or other dusting powder may be compounded with tannin, alum, or similar substances. The list of lotions may be also at times consulted with advantage. Thus, cologne water, weak spirit lotions, tannin, and aromatic wine, or carbonate of magnesium, may each be serviceable. Lastly, the charron oil (equal parts of lime-water and linseed-oil), spread thickly upon linen, will possibly give more relief than the other articles named; the chief objection to it being the consequent soiling of the patient's clothing.

¹ Hebam, Kalend., Obstet. Gazette, March, 1882.

² Unna's salve muslins and pastes will be found effectual and neat applications in many forms of intertrigo.

Erythema Multiforme.

Erythema Multiforme is an exudative disease of the skin, in which appear flat or elevated lesions of an erythematous type in various forms, the exanthem being at times symptomatic of constitutional derangement.

Symptoms.—In this affection, which is usually of symmetrical development, erythematous maculæ, flattened papulæ, and even large flat nodosities, very rarely vesicles, occur, usually upon portions of the extremities, the forearms, the legs, and the dorsum of the hands and feet. The eruption, which is much more generally recognized in clearly defined patches, usually commences with pin-head to finger-nail sized macules of a darkish-red shade, losing their color under the pressure of the finger, which in the course of some hours exhibit tumefaction in various degrees, producing thus the papules, tubercles, and nodes already described. The disease may persist for but a few days, but in severer grades it lasts for several weeks. In the height of the exudative process, there is usually an efflux of the coloring matter of the blood into the skin which is the site of the several lesions; and thus are produced the singular shades of reddish-black, purple and red, blue and red, yellow and orange, which are so characteristic of simple bruises of the extremities when the injury has been sufficient to cause extravasation of blood. The lesions occur in various shapes, sizes, and shades, and a number of names have been used to designate their several appearances, which require explanation though they are without any practical value.

ERYTHEMA ANNULARE is characterized by central paling of color and peripheral extension of the erythematous patch, in the form of a ring.

ERYTHEMA FIGURATUM occurs in gyrations formed by coalescence of two or more annular circles.

ERYTHEMA IRIS (Herpes Iris) is the result of successive new erythematous centric colorations, by which at times several differently shaded concentric rings are formed.

ERYTHEMA MARGINATUM is that form in which a distinctly elevated and defined marginal band is left as the sequel of an erythematous patch.

ERYTHEMA NODOSUM is regarded by several authors as a distinct affection. In it the characteristic lesions are of the dimensions of semi-globular pea to fist-sized tumors, pale red to livid blue in color, tender upon pressure, exhibiting in their involution the variegations of hue already described. They occur at times, not only in the localities named above, but also upon the trunk and face. Though occa-

sionally becoming so soft to the touch that fluctuation may seem to be present, they never terminate by suppuration.

ERYTHEMA PAPULATUM (or PAPULOSUM) and ERYTHEMA TUBERCULATUM (or TUBERCULOSUM) are those forms in which occur respectively lesions of a papular or tubercular type.

ERYTHEMA URTICATUM is that form in which there is severe itching, and, as a result, scratching of the lesions, with crusts of dark dried blood at the summit of each. This crust is surrounded by the light red or bluish-red, flattened or elevated patch characteristic of the disease.

ERYTHEMA VESICULOSUM and ERYTHEMA BULLOSUM are rare and exceptional forms where the exudation is sufficient to raise the horny layer of the epidermis into larger or smaller, serum-containing chambers. These may be, as regards the erythematous patch, of central or peripheral situation; and may crown the summit of papule or tubercle. The fluid is usually removed by absorption, and is rarely set free by rupture of the vesicle or bleb.

Robinson¹ describes definitely an ERYTHEMA DIPHTHERITICUM, which is a rash of septic diphtheria. The early eruption is a diffuse erythema of the skin of the chest or of the belly, light red to pale red, mottled, scarlatiniform, or punctate, non-pruritic, disappearing under pressure, unaccompanied by fever, and vanishing in one or two days.

The rash of septic diphtheria occurs only after several days of the disease, and is a limited or generalized erythema. It begins as pin-head or larger sized erythematous maculæ, each of which spreads at the periphery, and pales in the centre, by which process rings are formed. The latter increase till a diameter of several inches is attained. While these erythematous rings with clearing centre and red, elevated rims are enlarging, new spots continue to form, till the eruption has all the features of a multiform erythema. Gyrate and figured forms result from coalescence of lesions. Occasionally, the centre of a ring is cyanotic. The eruption does not itch. In fatal cases it persists till death.

A number of medicaments, when ingested or externally employed, are capable of producing eruptions identical in appearance with the lesions of erythema multiforme. For descriptions of these the reader is referred to the chapters devoted to dermatitis medicamentosa and dermatitis venenata. Quinine, the iodine and bromine compounds, arsenic, belladonna, chloral, salicylic acid, and other substances, are often responsible for these symptoms.

The name, multiforme, given to this disease by Hebra, is justified by the singular diversity of lesions which it displays. These are remarkable not merely for their variety, but for their occurrence in such variety both simultaneously and successively, and for their rapid change from one type to another.

¹ Journ. of Cutan. and Ven. Dis., 1883, p. 83.

The subjective symptoms, save in the urticarial form of the disease, are usually of a trifling character. The slight sense of heat and burning awakened by the lesions is altogether out of proportion to the extent of development of the latter.

The symptoms, however, indicative of a general disturbance of the system may be of a marked character. General malaise, fever, inappetence, pharyngeal inflammation, chills, severe gastro-intestinal disorder, rheumatoid involvement of the articulations, and even organic changes in the heart (valves, endocardium, and pericardium), lungs, and kidneys (Kaposi), have all been noted as coincident or causative phenomena. In many of these cases it is clear that the exanthem belongs to the list of symptomatic erythemata, and is of insignificance in comparison with the grave general condition. With these exceptions, however, the prognosis is in general quite favorable, as the disease may terminate in a few days, and rarely exceeds a month in duration.

Occasionally the mucous membranes are affected to a disagreeable or even painful extent. Thus a sudden tumefaction of the uvula may supervene upon the cutaneous symptoms, even in cases sufficient to impede respiration; or the lining membrane of the larynx be involved, and the resulting aphonia in various degrees persist for two or three days.

Etiology.—"We are in a state of complete ignorance as to the cause of these erythemata" (Hebra). We simply know that the affection is more common in the spring and autumn; that it occurs in the young or in the early periods of adult life; that the papular and tubercular forms are more common in men, and the nodose forms in women; and that in many cases it occurs in those who are affected with rheumatism. There can be but little doubt that its etiology includes a list of varying and widely differing causes. The author has seen severe manifestations of the disease in a young woman with extensive ulceration of the cervix uteri. Tilbury Fox noticed its frequency in young servants brought to town from the country. It is not rare in young female immigrants who have recently made a "steerage" passage to this country.

Pathology.—Erythema multiforme is essentially an hyperæmia of the integument which, under certain obscure influences, advances more or less rapidly to the stage of a mild grade of inflammation with consequent exudation. If, with Landois and Lewin, it be accepted that the process is the result of vaso-motor nerve influence, it cannot be determined whether these nerves are irritated at points of origin or distribution. In the case of erythema nodosum, Hebra advances what he admits to be an hypothesis, in saying that the morbid process is essentially an inflammation of the lymphatic vessels. In some cases it is evident that there is extravasation of blood from the vessels into the skin of the affected parts.

Léloir¹ discovered in the papules, tubercles, and bullæ of the

¹ Bull. de la Soc. Anat., 1884, p. 294

erythemata, only the phenomena of hyperæmia and exudation limited to the corium and subcutaneous tissue; and Villemain¹ simply confirms these facts.

Diagnosis.—Erythema multiforme is always to be carefully distinguished from the traumatism producing bruises, especially upon the lower extremities. This is a point which may have an interesting bearing upon certain medico-legal questions, especially in the case of young children.² The tendency of the disease here considered to symmetrical arrangement upon the two sides of the body; the occurrence of lesions evidently dating from several periods, where successive crops appear; and the absence of all history of external injury, will usually suffice to establish a diagnosis. Among the precocious affections of the subcutaneous connective tissue in syphilis, Mauriac has described a lesion resembling somewhat the symptoms of erythema nodosum; but in such cases, and especially in women, mucous patches of the vulva, anus, or mouth, with coincident adenopathy, would point to the real nature of the disease.

Treatment.—As the disease under consideration progresses naturally to a favorable termination within the course of a few weeks, the duty of the physician is usually limited to the question of diagnosis merely. He should remember that the larger lesions seen in erythema nodosum never suppurate; and thus be not tempted to open them with a lancet. Local treatment is rarely called for; and in any case should be restricted to the application of hot or cold water, as found most grateful to the patient, with possibly the use of a weak lead lotion. Internally such medication should be employed as is indicated by the general condition of the patient. Iron, quinine, strychnia, and the dilute hydrochloric acid will be found beneficial in many cases. Constipation and indigestion are to be corrected by appropriate measures. When the disorder is evidently purely symptomatic, the internal treatment is to be directed to the general condition present. In rheumatic cases, the indications for such treatment are clear. When the erythema produces extensive œdema of the uvula, incisions may be requisite to prevent dyspnoea and dysphagia.

Prognosis.—It will be gathered from what has preceded, that the prognosis is always favorable. The fatal cases reported are usually those where the result was due to grave constitutional conditions, and where the erythema multiforme was an insignificant feature of the malady. The disease may relapse in susceptible individuals at those periods of the year when it is most frequently observed.

¹ Gaz. Hebdom., 1886, Nos. 22, 23.

² Since this paragraph was written, the author, in conjunction with a number of other physicians, was summoned as a witness in a case where both parents of a lad who exhibited the lesions of polymorphous erythema, and who died suddenly, were charged with beating their child to death. They were exonerated on the basis of the evidence of the experts.

Urticaria.

Lat. *urtica*, the nettle.

Urticaria is an exudative affection of the skin in which appear ephemeral, whitish, or rosy-tinted wheals surrounded by a reddish areola, giving rise to an intense pruritus.

Symptoms.—This disorder, popularly known as the “Nettle-rash” or the “Hives,” may be ushered in by constitutional symptoms, such as inappetence, malaise, cephalalgia, or mild pyrexia symptoms lasting for a few hours or even for a day or more.

With, and often without, such prodromic symptoms the eruption suddenly appears in the form of wheals upon the surface, which frequently disappear with equal rapidity, leaving behind no traces of their existence save a slight and transitory hyperæmia of the affected spot. The lesions may be as small as a finger-nail or a coffee-bean, and are usually of this size; but in certain rare instances “giant wheals” are seen, large tomato-sized projections or flat elevations of broad areas of the integument, covering the greater part of the belly or the buttock. In color, they are either rosy-red or whitish; and are usually surrounded by an hyperæmic areola. They may be isolated and few; or numerous and closely packed together; may even coalesce so that individual lesions are scarcely recognizable. They are usually firm and semi-solid to the touch. Rarely the horny layer of the skin is raised in fluid-containing lesions by the sudden effusion of serum beneath. In contour, they are roundish or oval-shaped; but a variety of curious outlines may result from the irregularity of their development. Concentric circles, lines, bands, and even figures, are in this way produced. The finger-nail drawn across the unaffected portions of the skin, in a patient with urticaria, will often produce a linear wheal of extent corresponding to the line of irritation. It is said that in this way the so-called “medium” with a sensitive skin exhibits written characters upon the surface of his body.

The subjective sensations induced by these lesions are distressing in various degrees, according to the susceptibility of the individual. Every grade of pruritic burning, tickling, crawling, pricking, and especially stinging sensations are thus engendered. The efforts of the patient to secure relief by scratching, not only serve still further to develop the eruption, but to irritate, tear, and otherwise wound those lesions already in full evolution. In this way the serous effusions are produced at the summits of the wheal; and in this way, also, the lesions really transitory in their course may be changed to more persistent, deeply colored, flat, lenticular papules. Where the skin is delicate and thin, as that of the lids and prepuce, considerable cedema may result.

All parts of the body may become affected, and this irrespective of age and sex, though children are particularly liable to the disease.

There are few very young children with skins unwashed for an entire month, who will not exhibit urticarial symptoms, if there be an added irritation of the surface.

The lesions may be numerically few, or so numerous as to cover the entire surface of the body. Though more frequently acute in course, they may recur frequently from apparently insignificant causes, or even become chronic. In many cases trivial, the disease may become so aggravated as to make the largest demands upon the skill of the physician.

The rapidity of appearance and disappearance of the lesions visible upon the skin is a characteristic feature of the disease. In some instances but a few moments are required after the operation of an efficient cause, to develop a large number of closely packed wheals upon the skin. Even while these are under inspection, it can be noted that there is a change in individual lesions, some fading or completely disappearing, while others are newly developing.

A number of names have been employed to designate the several external peculiarities of the lesions as they are presented to the eye. Thus *U. Annularis* occurs in rings; *U. Figurata*, in gyrations from union of several lesions or patches of lesions; *U. Vesiculosa* and *U. Bullosa*, where there is a vesicular or bullous development at the summit of the lesion; and *U. Papulosa* (or *Lichen Urticatus*), where there is a combination of the features of the wheal and the papule, the lesions being usually rape-seed to coffee-bean in size, and covered with blood crusts where their apices have been torn in scratching; *U. Tuberosa*, where "giant" wheals occur, some attaining the size of a hen's egg; *U. Hæmorrhagica* (*Purpura Urticata*), where the urticarial element is developed in a lesion produced by cutaneous hæmorrhage; and *U. Evanida*, or *Perstans*, where there is respectively a rapid or slow process of involution in the characteristic symptoms.

Urticaria Pigmentosa.

In this form of the disease, characteristic wheals in young subjects are succeeded by peculiar pigmentations of the surface in dark-brown, greenish-yellow, or chocolate-tinted spots, which persist from the date of one eruption to another. The skin is highly irritable, and the most trifling causes are sufficient to induce an attack. In Morrow's case¹ the mere removal of the clothing and exposure of the skin of the little patient to the air were sufficient, at the time the author had the opportunity of observing the phenomena, to produce an abundant crop of wheals over the surface. The pigmentation in these cases is probably due merely to the extraordinary sensitiveness of the integument, whereby repeated and rapidly repeated exudations occur in the skin, and the resulting maculations are proportioned in depth of color to the frequency and intensity of the process.

Four cases of this disease were exhibited at the International

¹ Archives of Dermatology, Jan. 1879.

Medical Congress in London in 1881, by Mackenzie, Cavafy, and Fox; and others have been reported by Nettleship, Beatty, and Crocker.

In a case where the lesions of this singular disorder were examined by Pick, microscopically, hemorrhages were recognized in the lesions.

Baker¹ reported a case of Urticaria Tuberosa characterized by the presence of persistent, yellowish-red tubercles in various parts of the body which proceeded to ulceration. The parts most affected were the knuckles, elbows, and ears. These tubercles are said to have begun in a manner similar to that which characterizes the onset of evanescent urticarial wheals and tubercles. A somewhat similar case was observed by McCall Anderson.²

Urticaria, like erythema, may be either idiopathic or symptomatic; and in either, the urticarial condition may underlie or be superimposed upon almost every elementary lesion noted in the integument. Its lesions may complicate (or be complicated by) the macule, papule, tubercle, vesicle, bulla, and pustule. It may spring from an excoriation, or result in a fissure. It is common in traumatisms, and is a prominent symptom in the skin bitten by insects, reptiles, and the domestic animals.

Etiology.—Idiopathic urticaria always results from the action of external irritants. The enumeration of these would require a recital of all the external agencies which are capable of irritating the skin. Prominent among them are the bites and stings of mosquitoes, lice, fleas, bed-bugs, flies, gnats, wasps, caterpillars, and bees. Contact with certain species of the jelly-fish is said to be also effective. The wounds thus inflicted usually excite a stinging or burning sensation, by which the patient is excited to rub or scratch the part. Then a wheal is rapidly formed in the site of the injury, and the irritation thus set up is conveyed to other parts of the skin in the vicinity, so that, especially in children, a single traumatism by an insect may excite an urticaria covering a much larger area. Many medicaments operate similarly, and it should be added that some of them, though applied externally without toxic effect to the mass of men, may produce urticaria in exceptional cases. Thus a common flaxseed poultice when made to cover but a small portion of the body has produced violent symptoms of the disease under consideration. The irritant action of the nettle (*U. urens* and *U. dioica*) has given the malady its name. Climatic influences, more particularly those in which the surface of the body is exposed to cold air, are very efficient in the production of urticaria, as also of bronchial asthma, with the symptoms of which the disease under consideration may often coexist or alternate, in the case of adults. Mechanical violence, the application of leeches to the surface, and surgical traumatisms may also induce the disease.

Symptomatic urticaria is chiefly of the variety named by authors,

¹ Lancet, Aug. 1881, p. 158.

² Brit. Med. Journ., Dec. 8, 1883.

ab ingestis, since it most frequently results from medicinal or dietary articles taken into the stomach. Of the latter class may be named eggs, cheese, pork, sausage, coffee, tea, cocoa, and confectionery; crabs, lobsters, clams, caviar, and several species of fish-roe, oysters, and fish generally; strawberries, cucumbers, skins of grapes, nuts, dates, raisins, almonds, figs, prunes, gooseberries, and raspberries; canned fruits, meats, and vegetables; oatmeal, peas, beans, onions, garlic, and "corn;" pickles, sauces, honey, mushrooms, pastry, salads, and spinach. Vinegar, champagne, beer, and alcoholic beverages in general are capable of inducing a similar effect.

Among the medicinal articles capable of inducing urticaria may be named the balsams, the turpentine, quinine, glycerine, chloral, valerian, arsenic, hyoseyamus, cinchonidia, salicylic acid and the salicylates, senna, santonine, and opium and its alkaloids.

In the case of children and infants, a severe urticarial efflorescence may be provoked by any undigested morsel of food, or indigestible material of any sort, which may have been passed into the stomach. Thus a bit of orange-peel, or fragment of potato-paring, or the skin of grapes, may be discovered to lie at the root of the trouble. In the case of adults also who have suffered from repeated attacks of urticaria, and have a fully developed sensitiveness of the gastrointestinal tract, almost any unusual alimentary substance, if ingested, may induce a return of the disagreeable symptoms.

It must be borne in mind that this undue sensitiveness to the effect of ingesta or external irritants is often an idiosyncrasy peculiar to the individual either on special occasions or at all times, and that, given this susceptibility, the effect is often great with a relatively insignificant etiological factor. Thus one may see cases in which a teaspoonful of beer, one grain of quinine, the smallest fragment of cheese, and but a single strawberry will not only induce an urticarial rash of such extent as to cover the greater part of the surface of the body, but will do the same on every occasion when the articles named are swallowed in the quantities given. This, it is important to remember, is in general characteristic of the medicamentous eruptions. The *a priori* reasoning, that the greater the quantity of the toxic agent applied or swallowed, the graver the effect, may lead to gross errors. It should always be remembered, in seeking the explanation for an urticarial rash, that the smallest amounts of apparently innocent substances may be responsible for the largest annoyance.

Other causes of urticaria may be cited, such as moral emotions (fear, shame, anger); gastro-intestinal disorders, where ingesta play no part; intestinal parasites; malaria; the exanthematous fevers, particularly in their prodromal stages; disorders of the uterus, kidneys, and nervous centres; pregnancy, dentition, and the irregularities attending the menopause; and, lastly, the following special diseases: asthma, pemphigus, prurigo (of Hebra), rheumatism, and purpura.

Pathology.—The wheal of urticaria is produced by an interchange of play between bloodvessels, muscles, nerves, and tissues, under the

operation of a principle which the French characterize as the *choc en retour*. There is, first, most probably under the influence of the vasomotor nerves, a clonic spasm of the capillaries in a limited area of the derma, by which an acute œdema is produced with some serous exudation. The rapidity with which this occurs is greater than that with which the tissues of the vicinage can accommodate themselves to it either by imbibition or more diffuse tumefaction, and there results a counter-pressure upon the affected capillaries, by which their lumen is still further restricted. As the wheal is not a purely fluid-containing nor yet an entirely solid lesion, but is semi-fluid in consistency, the mechanical pressure is greatest at the centre and least at the periphery. Thus is explained the white and relatively bloodless appearance of the centre of certain wheals, and their rosy or reddened outer border. It is confirmed also by the fact that generally the most acute lesions, those springing into view most rapidly, are chiefly characterized by this whitened centre, while those more indolent or even chronic in their career, have been less subject to the inter-play of the forces described above, permit of more general vascular injection, and have a light crimson or even at times a dull red centre. Wheals have been excised and examined microscopically by Neumann, Poncet, and others, with the result of discovering merely evidences of infiltration. According to the last-named author, the lymphatic vessels are also choked with "lymph clots." Rohé¹ explains the occurrence of the wheal by supposing that certain sensitive nerve-fibres of the skin possess also a vasomotor function.

The process described, occurring as an epiphenomenon after the traumatisms or other cutaneous lesions enumerated above, merely adds its characteristic symptoms to those previously apparent.

Diagnosis.—The diagnosis of typical urticaria is so readily made that the disease is often recognized before the attention of a physician is called to it. As usual, the atypical cases are those in which confusion may arise. The chief points to be remembered are: the rapidity of evolution of symptoms, their ephemeral duration, and the characteristic sensations they awaken. The action of the animal parasites and insects not parasitic should not be overlooked, and the rash be closely examined for the minute wounds inflicted in this way, often covered with a minute pin-point to pin-head sized dried "blood-scale." The various forms of erythema papulatum, tuberculatum, and nodosum are liable to be mistaken for urticaria; but this is in many cases inevitable, as the intermediate forms between the two disorders are with difficulty assigned to either category. Absence of marked subjective sensations and persistence of lesions would generally imply the existence of an erythema, while marked prevalence of these symptoms would properly decide in favor of urticarial disease.

In many cases the physician is consulted by a patient who gives a history of well-nigh intolerable distress at night or at other capriciously

¹ Maryland Med. Journ., May 15, 1881.

selected hours, who repeatedly and vainly endeavors to exhibit the lesions as they appear upon the skin. Being examined on occasions, scarcely a trace of cutaneous disorder is manifest. Here the practitioner has practically to decide upon the character of an eruption he never sees. The task is rarely a difficult one. No other than the urticarial eruption behaves in this fashion. Occasionally the physician will discover delicate, rosy, or deeper stained mottlings of the surface where the wheals have been but are not. At times also he will succeed, on the flexor aspect of the forearm, or in some situation where the skin is equally delicate, in producing the appearance of one or more typical lesions by the aid of his finger-nail in scratching or rubbing. These cases are more frequently of the chronic or at least relapsing class; and the victims of the disease may have a characteristic facies, a worn look from loss of sleep or mental emotion. One is apt to discover in this class those who are mourning over the death of relatives, loss of property, separation from home and friends, and those harassed by anxieties.

The several lesions of erythema are larger than those of urticaria, and do not develop from characteristic wheals; in erythema multiforme, the lesions are far more persistent in type, and do not provoke the characteristic subjective sensations of urticaria; in erysipelas, the redness is characteristic and the swelling more diffuse.

Treatment.—Many cases of acute urticaria demand no treatment. The physician is summoned for a diagnosis. The patient and his friends are alarmed by the dread of variola or other severe affection, and learning that perhaps a pickled cucumber is alone responsible for the disorder, they wait with equanimity for the conclusion which is always reached. Fortunately, the unusual, severe, and relapsing forms rarely begin with acute symptoms.

Naturally the first indication to be observed is the removal of the cause, and this, if possible, accomplished, the exclusion next of all aggravating agencies. The discovery of the cause, at times readily effected, is often the most serious problem which is presented. An exhaustive and minute examination of the person and history of the patient, a study of his food, drink, medicine, régime, clothing, sleeping apartment, habits, occupations of life, and mental state, are here essential. When the disorder is recent, and is an *urticaria ab ingestis*, a brisk emetic or cathartic may rid the stomach or bowels of offending matters. This done, it should be borne in mind that an idiosyncrasy of the patient may at this moment render the skin peculiarly sensitive to the action of other ingesta, and the diet, for a few days certainly, should be carefully prescribed. In many cases the alkalies are indicated by an acid condition of the stomach, and then the preparations of sodium, potassium, and magnesium are useful. Laxatives, such as rhubarb, magnesia, the cathartic mineral waters, and, in the case of children, small doses of castor-oil, are frequently indicated when there is no suspicion of irritating ingesta. At other times there is marked atony of the digestive organs, when the mineral acids, the bitters, and the ferruginous tonics may be needed. Again,

lactopeptine, pepsine, or the subcarbonate or the subnitrate of bismuth may be exhibited with advantage for the relief of the indigestion which may be the prominent feature of the attack.

Other remedies found useful in the internal treatment of urticaria are sulphurous acid in drachm (4.) doses three times daily in sweetened water (Da Costa); copaiba; strychnia (Guibout); the arseniate of sodium, employed by Blondeau in doses from one-thirtieth (0.002) to one-fiftieth (0.0013) of a grain; the fluid extract of ergot in half-drachm (2.) doses (Morrow); the sulphate of atropia, given by Schwimmer in doses of one-sixtieth (0.001) of a grain; and the salicylate of sodium in scruple (1.33) doses. The last named drug has been highly praised by a number of writers. It is often given in one grain (0.06) doses every hour. Pilocarpine, or the fluid extract of jaborandi, is known to produce at times a powerful effect in relieving surface congestions of the skin, by means of the excessive hyperidrosis which it occasions, and in proportion to which it may become dangerous.

Schwimmer endorses the following formula for this affection :

R. Atropiæ sulph.	gr. $\frac{1}{6}$;	0 01	
Glycerin. }			
Aq. dest. }	āā 3ss ;	2	
Gum. tragacanth.	q. s. ;		M.
Ft. pil. No. xx.			

The treatment of a symptomatic urticaria should have regard also to that disorder of the viscera or general system to which the cutaneous symptoms may be attributed. The uterine complaint of a woman may require appropriate treatment, as also the diabetes of the patient with an affection of the kidneys. Quinine is, of course, indicated in periodical attacks, but its action in exceptional cases as a direct cause of urticaria should not be forgotten. The same, to a greater extent, is true of arsenic, the bromide and iodide of potassium, hydrate of chloral, and gelsemium. The larger number of patients are best treated without the employment of these drugs.

In the local treatment of urticaria, which is chiefly intended to assuage the disagreeable sensations experienced in the skin, the greatest diversity exists in the methods employed. This is to be largely explained by the fact that a similar difference is to be noted in the relief experienced by different patients after the application of the same medicinal agent. Thus cold and hot water baths, baths medicated by marine salt, aromatic vinegar, alcohol, cologne, camphor, the alkalies, and sulphuric ether; compresses dipped in such solutions and laid over the part affected; douches and vapor baths will, any of them, in the case of some individuals produce a marked alleviation of symptoms; and in others be either inoperative or actually serve to aggravate the symptoms in the highest degree. Hebra asserted that several of the baths named above are quite useless, while Kaposi recommends cold lotions medicated with aromatic volatile substances. Fox prefers alcohol, or cologne water to which benzoic acid has been added, dabbed over the part, and permitted to evaporate. Hillairet

and Gaucher employ in a similar way a solution consisting of one-third of ether and two of warm water.

The alkaline bath should contain the carbonate of sodium, the borate of sodium, alum, or the bicarbonate of potassium, either singly or in combination in the strength of about six ounces (192.) of the salt to thirty gallons of water. One or two ounces (32.-64.) of the sulphuret of potassium may be substituted for these. The water is made demulcent by the addition of starch or gelatine, or by squeezing into it a bag of muslin containing bran. When it is desired to employ the acid bath, half an ounce (16.) of either the muriatic or nitric acid is added to the quantity of water given above. The bath of this size may also be medicated with one drachm (4.) of corrosive sublimate; or this drug may be used as a lotion in the strength of from one-fourth (0.0016) to one-half (0.0033) a grain to the pint. Carbolic, benzoic, salicylic, boric, dilute hydrocyanic, and dilute nitric acids in weak solution, are also employed with advantage in some cases. Other external applications are thymol, carbonate of ammonium, bromide of potassium, ether, chloroform, and chloral-camphor in the strength of half to one drachm (2.-4.) to the ounce (32.) of ointment. This last is prepared by rubbing together equal parts of camphor and chloral till a semi-liquid substance results. It is an antipruritic remedy of some value, but will increase the uneasy sensations produced, if not largely diluted.

In other cases the oily or fatty substances will give more prompt relief, especially if the eruption has been much irritated by scratching and tends to persist. Among them may be named the linimentum calcis of the pharmacopœia, and cold cream to which have been added a few drops of the fluid extract of *grindelia robusta*.

Mention should also be made here of the dusting powders which the reader will find described in the chapters relating to general therapeutics and the erythemata. They are the most cleanly of all external preparations in urticaria, and are often the only local measures required. With internal medication, as each case may suggest, the practitioner will be careful to note that the clothing of the patient is of a character that will not aggravate the eruption, that sleep is secured without an excess of bed-covering, and that places where the temperature is for any reason elevated are carefully avoided, such as the proximity to a fire-place or drop-light, the opera-house, the kitchen, etc.

Among the Germans, sulphur, naphthol, and tar salves are employed in the management of the disease.

One of the most effective and trustworthy of local applications in severe urticaria is a starch solution. The starch is first mixed with cold water, and then boiled till the solution is of the consistency of thin mucilage. To each pint of this a drachm (4.) of the oxide of zinc, and a couple of drachms of glycerine (8.) are added before ebullition is completed. When cool, and applied to the surface, this often gives prompt relief.

Such is the empirical treatment of urticaria. It will be seen to be

founded upon no rational method of procedure, and this because the very capriciousness of the disease demands and secures relief in one instance by a treatment which should be reversed in another. It must be admitted that cases occur in which all treatment seems absolutely valueless, often really injurious to the patient. These cases will usually be found to be of the relapsing or chronic type. The subjects of this form of disease are often plunged in morbid mental states; dreading by day the exacerbations of the night; brooding over misfortunes experienced or anticipated; worn with loss of sleep; fearful of a generous régime at the table. Here the treatment is largely moral, and makes demands upon the tact and courage of the physician. Travel, change of climate, variation in the routine of life, new social surroundings, are here valuable. The widow must be made to lay aside the heavy crape veil beneath which her urticaria plays; the solitary patient must secure a companion capable of diverting the nervous attention for a few hours each day.

It seems probable that to these efficient agencies must be in part ascribed the relief so often obtained at the various mineral springs, both in this country and abroad. Thus the Karlsbad, Vichy, Saratoga, and White Sulphur Springs, have all been credited with the production of beneficial effects in urticaria.

Prognosis.—The prognosis of an attack of urticaria is, as may be seen in what has preceded, exceedingly variable in different cases. Simple attacks of the acute sort are trivial, and in a few days the patient may retain but the slightest souvenir of the trouble. In the case of children, the attack is often at an end in the course of twenty-four hours.

It should, however, never be forgotten that urticaria may torment the life of a patient to the utmost bounds of tolerance, and seriously impair the general health. Persistent and rebellious chronic urticaria may prove to be a more formidable affection than a mild attack of syphilis.

Dermatitis.

Dermatitis is an affection of the skin characterized by the phenomena of inflammation, including heat, redness, pain, and infiltration, terminating in resolution, suppuration, or the occurrence of gangrene.

Inflammation of the skin occurs in a large number of cutaneous affections. Under this title, however, are grouped those inflammations where the result is plainly due to a direct influence exerted upon the skin by thermal, chemical, or mechanical agencies. These inflammations may be mild or severe.

The milder forms of dermatitis disappear without leaving behind them persistent lesions. The graver forms may terminate in gangrene, or produce death by shock or exhaustion.

Dermatitis, then, is that idiopathic morbid state whose phenomena are induced by the action of certain special agencies, such as heat, cold, poisons, and traumatism. The inflammatory process may involve the

superficial or deep portion of the integument, or may extend to the subcutaneous tissues, or even deeper. The symptoms vary with the nature of the cause, the extent and degree of its influence, and the circumstances attending its operation. Hyperæmia usually precedes and may be followed by a fluid or plastic exudate, by the production of one or more of the several recognized cutaneous lesions, by diphtheritic deposits upon the surface, or by gangrene. With these there may be general symptoms of mild or severe grade, due to the influence excited by the local process upon the general economy.

[A.] **Dermatitis Traumatica.**

External violence, various in character and severity, is capable of inducing dermatitis whose symptoms differ in degree, though their career is, in general, the same. In this list are included the inflammations produced by surgical interference with the continuity of the integument; excoriations caused by scratching, by the friction of garments and other articles injuriously acting upon the skin; by the various implements handled in the trades; and by the bites and stings of beasts, insects, reptiles, and fishes, when the result is traumatic and not toxic in character. These injuries may be in the form of contusion, blow, concussion, pressure, puncture, incision, or laceration; and the consequences are declared in heat, swelling, redness, and pain; and in itching, burning, stinging, or pricking sensations, with subsequent inflammatory symptoms varying in grade from mild and transitory hyperæmia and exudation to severe grades of inflammation with consequent production of pus, granulation, and repair; or gangrene, and separation of the slough; or, finally, by repair without consequences.

[B.] **Dermatitis Venenata.**

Certain medicinal and other substances applied to the external surface of the skin, are capable of exciting inflammation either by operating as caustic, irritant, toxic, or even traumatic agents. In this list are included most of the strong acids and alkalies; croton oil; cantharides; mustard; tartar emetic; mezereon; the compounds of mercury; arnica; turpentine; ether; chloroform; the tarry compounds; many of the dyes; several members of the rhus family (the *Rhus toxicodendron* and *Rhus venenata*, poison ivy, poison oak); the nettle; the smart weed (*Polygonum punctatum*); cowhage (*Mucuna pruriens*); and glass in fine powder or delicate filaments, such as are thrust into the skin when handling certain articles of Venetian glassware. The list might be indefinitely extended, as there are few articles which are not capable of producing some irritation of the surface of the skin, if applied to it with sufficient vigor and for a certain period of time; and in some it is difficult to decide whether the effect is more traumatic or toxic. An almost equally long list of substances of animal origin might be also named having poisonous effects upon the integument, such as decomposed or ammoniacal urine,

feces, ichorous pus, pathologically altered secretions from the uterus, eye, ear, nose, etc.

The symptoms of dermatitis venenata are substantially such as have been already described. Numerous types of cutaneous lesions, macules, pustules, papules, vesicles, bullæ, wheals, scales, crusts, free serous and purulent discharges, subcutaneous abscesses, and even gangrene with sloughing, may result from the operation of such causes, the result being largely proportioned to the character of the agent producing the injury.

A few of the more common sources of such accidents may be briefly considered.

The use of soap for laundry, toilet, or other domestic purposes, containing an excess of alkali, or even minute particles of bone, is a frequent source of trouble, as are also several of the proprietary articles sold in the shops for similar employment. In these instances, the erythema, vesiculation, infiltration, or other symptoms, will naturally be distinguished on the hands, or the hands and the face. Stockings and other undergarments dyed with aniline, picric acid, chromium, and arsenic, the leather lining of the inside of the hat or the cap, and the painted toys to which the lips of children are applied, will beget mischief in the various regions of contact for each. Dühring reports cases where the dye-stuff in the lining of shoes penetrated the material of the stockings in women, and produced dermatitis of the feet or legs.

The tincture of arnica, an article unfortunately much used as a domestic application for contused and incised wounds of a simple character, has produced very serious annoyance in some cases, two such having been recently presented at the author's clinic.

The number of these accidents is annually increasing. Cartier¹ reports excessive erysipelatous swelling, a phlyctenular eruption, and submaxillary adenopathy resulting from the external use of arnica. Beauvais reported to the Paris Medical Society gangrenous results in one case. Buchner believes this poisonous action to be due to insects (particularly the *atherix maculatus*) found in the calyx of the arnica flower.

Other native plants, a large number of which are enumerated in a valuable work by Dr. James C. White,² presented before the American Dermatological Association in 1886, are similarly effective. Wesener³ reports that the Malacca bean tree (*Anacardium Orientale*) furnishes a caustic oil, called cardol, or cordoleum pruriens, which produces, after application to the skin, vesicles and vesico-pustules which contain cardol and terminate by crusting. He reports a generalized eruption, beginning on the face, due to this cause.

The antiseptic dressings of modern surgery are at times responsible for eruptive troubles. Among these may be named iodoform, which has produced erythema, vesicles, pustules, and wheals.⁴ Carbolic

¹ Lyon Méd., April 13, 1884.

² *Dermatitis Venenata*, Boston, 1887.

³ Deutsch Arch. f. klin. Med., vol. xxxvi. p. 578.

⁴ See paper of Dr. R. W. Taylor, read to the New York Academy of Medicine, 1887.

acid and corrosive sublimate dressings have had similar effects. Many of the articles employed therapeutically by the dermatologist should be placed in the same category. Dr. N. E. Green,¹ of London, reports severe œdema of the skin followed by desquamation, resulting from the application to it of the ointment of ammoniated mercury in the strength of two drachms (8.) to the ounce (32.).

Leszinsky reports a case of dermatitis following the use of a "triple extract of heliotrope" as a toilet preparation over the face.

An exceedingly common source of such dermatitis is urine retained upon underclothing in adults. A persistent dermatitis of the scrotum, perineum, or inner faces of the thighs in either sex, always calls for a careful examination as to whether a few drops of urine are left in contact with such underclothing after each act of micturition. Fistulæ, urinary incontinence, prostatic disease, "stammering of the bladder," imperfect finish of the *coup de piston* in men, especially after a gonorrhœa, and similar troubles, are all to be remembered.

The eruption produced by the poison ivy and other varieties of *rhus*, is almost exclusively an American disease; and from its frequency in this country has attracted a great deal of attention. A certain degree of susceptibility to the poisonous action of the plant is requisite for the production of its effects, as some individuals can handle the leaves of the plant with impunity, and others are said to be affected by its exhalations within a circle having a radius of several feet. It is, however, difficult to demonstrate the truth of the last statement, suspecting, as one may, that such instances are usually cases of contact with other than the suspected plant. The parts commonly affected are the hands and the regions to which the latter are carried, such as the face, genitals, arms, thighs, and neck. Bare-footed children suffer in the feet and legs. Usually the symptoms are developed in the course of a few hours, and consist of erythematous patches, scanty or profuse vesiculation with abundant, serous weeping after rupture of the lesions, swelling, œdema, disfigurement, and intense burning and itching sensations. Serious effects are occasionally produced. The author has seen deeply attached scars result from subcutaneous abscesses of parts greatly swollen. Occasionally, in particularly sensitive skins, the eruption spreads from the surface affected by the poison, to that where presumably none has been applied. It should be remembered, however, that articles of clothing may for brief periods of time certainly furnish sources of further trouble, being worn at the moment of contact with the plant, then laid aside, and, the occasion being forgotten, being subsequently employed. Thus a pair of undressed kid gloves after lying for two weeks untouched have sufficed to reawaken the disease.

A number of cases of dermatitis have originated in some parts of the Orient from contact with the varnish employed in the finishing of lacquered ware. This is manufactured from the *rhus* varnish. A

¹ Brit. Med. Journ., May 3, 1884.

few instances of such dermatitis have occurred in this country from handling the newly imported articles of this class.

Careful observation of a typical case, soon after the onset of symptoms, will disclose the exact surface of contact, each being delicately outlined by a reddened, tolerably well-defined line, within whose limitations will be seen a slightly tumefied, erythematous surface, at times displaying closely packed, pin-point sized papules, which may be embryonic vesicles, or may proceed to resolution without serous effusion.

The diagnosis of the eruption will be aided by recalling the features described in a careful monograph on the subject by Dr. White, of Boston.¹ According to this author, the lateral surfaces of the digits first exhibit the symptoms of the eruption; later, the dorsal surfaces; and latest, the thickened palms. The efflorescence also is more irregularly distributed, more uniformly vesicular, and the vesicles less transparent than in eczema. These lesions are, moreover, more vesicular, and less papular at the onset; and, though suggesting papules by their situation in the palm, are in that situation readily made to exude serum by puncture with a needle.

Internal medication is not required. The local treatment is that of acute eczema. The application of an alkali for the purpose of neutralizing the poisonous volatile alkaloid in the leaves of the plant (toxicodendric acid, Maisch) should evidently be considered solely with a view to prophylaxis, as it is difficult to understand how such neutralization can control the inflammatory process after its onset. The black wash, solution of sugar of lead, or oleated lime-water, should be employed at first, and be followed later by the dusting-powders. The late Prof. Babcock, of Chicago, a frequent sufferer from the disease during his extended botanical excursions, first taught the value of an ointment made by incorporating a decoction of the inner bark of the American spice-bush (*Benzoin odoriferum*) with cold cream. It certainly has afforded very prompt relief in the cases in which one is able to employ it, the difficulty lying in securing the bark of the shrub in its young and tender state.

A long list of topical remedies have been vaunted as specific for the relief of this disorder, from the brine of a pork-barrel to a decoction of the leaves of the plant itself. As the eruption subsides with satisfactory results when protected and not irritated by the local treatment, it is not difficult to explain these facts. In this way corrosive sublimate lotions; the tincture of iron; bromine, fifteen drops to the ounce (32.) of olive oil (Brown); dilute nitric acid; hyposulphite of sodium; bicarbonate of sodium; saturated solutions of chlorate of potassium; and grindelia robusta, a drachm (4.) of the fluid extract to eight ounces (250.) of water, have all been found useful.

[C.] *Dermatitis Calorica.*

Under this title are included those affections of the skin induced by extremes of thermal variation.

¹ New York, D. Appleton & Co., 1878, from the March number of the New York Medical Journal of the same year.

Unduly high temperatures produce in the skin some redness and a slight degree of swelling, the color not completely disappearing under pressure. If the exciting agent be withdrawn before further effects are induced, the color first deepens, then becomes paler, and in twenty-four hours the process is usually concluded with a very delicate and transitory resulting pigmentation.

Rays of heat and heated objects at a temperature above 125° to 175° F. produce immediately, or after a brief interval, first an erythema, which disappears when the source of heat is removed; second, after more prolonged exposure, the symptoms of active inflammation and exudation. Vesicles or bullæ, isolated or confluent according to the severity of the cause, may rise from a reddened skin which is usually intensely painful. These lesions are persistent or transitory, and generally filled with a clear serum, which exudes and dries into crusts after rupture of the chamber in which it was imprisoned. At other times the serous exudation is so great that the epidermis rises in broad plates, from beneath which the serum is exuded. This process may terminate by a free production of pus from the surface and gradual resolution. Adenopathy is a frequent concomitant symptom. In such dermatitis of extensive areas of the skin, the intensity of the process may awaken a violent fever; or death may result from shock or exhaustion.

In yet severer grades there is the production of an eschar, which is dry, brown, blackish, and destitute of all signs of vitality; or, as Kaposi describes it, dense, coriaceous, and as white as alabaster, upon which, nevertheless, some vesicles may appear, and by their presence suggest a false conclusion as to the vitality of the tissues upon which they rest. In from eight to ten days the eschar is removed by suppurative processes, and the scene is closed by the usual phenomena of granulation and cicatrization. The characteristics of the scar thus produced are its great irregularity, its tendency to stellate radiation, and the production of ridges, folds, pockets, and bridles.

Burns involving one-third of the surface of the body are of grave portent, and those affecting one-half are generally fatal, even though for from twenty-four to forty-eight hours there may be little complaint as to pain. The causes of death in these fatal cases are often obscure, as the post-mortem results are usually negative. Gastric and duodenal ulceration are, however, often recognized. Overheating of the blood, heart-paralysis, oligo-cythæmia, and actual destruction of leucocytes have all been supposed to be effective. In cases where life is prolonged to the third day, the complications of pyæmia, erysipelas, and tetanus may arise. Lastly, exhaustion following fever, suppuration, hæmorrhage, and visceral affections may lead to fatal results.

In the treatment of the simplest burns, rest, lotions of lead-water, and cool water with the application of compresses, are usually sufficient to secure relief; occasionally the dusting powders may be substituted advantageously for these. In the cases where the serum is invited rapidly to the surface, with the production of vesicles and bullæ, the latter should be gently punctured to give relief to the

tension by the evacuation of their contents, but the roof-wall should be preserved, as it may subsequently form an attachment to the exposed derma beneath. The indication then is to exclude the air as perfectly as possible and to prevent suppuration, indications admirably met by the application of carbolated oil and lime-water with the Lister dressing. Continuous immersion in water of the temperature most agreeable to the patient, as practised by Hebra in cases of severe and extensive burning, produces speedy and certain amelioration of the pain, and a favorable condition of the wounds, though it does not avert a fatal issue in any dangerous case.

The strictest antiseptic precautions are demanded when the suppurative process in the skin is both active and extensive. Disinfection with a five per cent. solution of carbolic acid, or a two per cent. resorcin solution, should be followed by the application of protective silk wet with a five per cent. solution of the sodic biborate, or sodic bicarbonate, and the whole enveloped either in borax-lint, antiseptic (mercuric iodide) wool, carbolized gauze, or salicylated cotton; over all, the impermeable rubber tissue should be wrapped.

Nitzsche¹ first disinfects the surface thoroughly with carbolic acid, having previously protected the blebs, after which it is covered with a thick varnish of linseed oil and litharge mixed by the aid of heat with five per cent. of salicylic acid. When this is dry, a second coat is applied, and the whole finally covered with a thick layer of wadding retained in place by an elastic bandage exercising moderate compression. Cicatrization is said to progress beneath the dressing without changing the latter. When suppuration does occur, the upper layer of the wadding is removed, and dried salicylic acid in powder is sprinkled over the surface, the wadding being afterward reapplied.

Skin-grafting may be required to cover the extensive ulcers left by the larger burns.

In CONGELATIO, or dermatitis from congelation, there are also usually, in the milder forms, circumscribed erythematous patches or plaques, generally recognized under the name of PERNIO, or chilblain, seated upon the digits or, more rarely, upon the face, and occasioning a disagreeable sensation of heat, smarting, or itching, especially after the chilled part has again been warmed. They are bluish or purplish-red in color, and often seated on a slightly œdematous integument. They are often cool to the touch, when subjectively hot. Authors have claimed that anæmia is a chief predisposing cause of the complaint, but it frequently occurs in perfectly healthy young people. Sir Erasmus Wilson has intimated that some cases of so-called lupus erythematosus of the hands belong to this category.

In the second grade of inflammatory reaction from the state of contracted bloodvessels and pallid integument produced immediately by the action of cold, bullæ and vesicles form, with, in severe cases, underlying ulcers.

In the third grade gangrene may occur, with and without the

¹ Deutsch. Med. Zeit., 1881.

formation of bullæ. The frozen part may become insensible, white, and cold, without the circulation in it of blood- and lymph-currents. From this condition reaction occurs, with the formation of an eschar, differing in depth according to the severity of the exposure to cold. If, however, over and beyond the interference with the circulation, the tissue itself has been destroyed, the part falls at once into gangrene when reaction occurs; or bullæ form larger than those described above, filled with sanguinolent serum; or the skin is smooth, marbled with bluish lines, whitish, cold, and insensitive. Mortification ensues, followed by the well-known phenomena of the "line of demarcation," and, in favorable issues, suppurative separation of the dead part, granulation, repair, and cicatrization. As the injuries induced by congelation are more frequent upon the extremities, the bones largely participate in the losses of tissue, especially those of the digits. Septicæmia and a fatal result may follow.

Chilblains are treated internally by the ferruginous tonics, particularly the tincture of iron; externally by stimulant applications, such as those containing iodine, camphor, carbolic acid, tincture of benzoin, and balsam of Peru. Kaposi recommends:

R. Pulv. camphoræ	gr. x;	50	
Crete præparat.	ʒi;	30	
Ol. lini	fʒij;	60	
Balsam. Peruvian.	℥xx;	1	M.

Frictions, with or without medication, are generally useful. The parts are to be carefully protected from pressure and undue friction effects.

Dilute nitric acid and peppermint water in equal proportions, painted over the part for three or four successive days, have been recommended by Lapatin for the treatment of frost-bitten fingers and toes. Hydrochloric and pyroligneous acids, lemon-juice, collodion, and acetate of lead, both in lotions and poultices, are also recommended. Meurisse advises in the management of both severe ambustio and congelatio, that goldbeater's skin be applied over any salves or lotions employed over the surface.

In cases of severe congelation the circulation is to be cautiously restored by friction in an apartment where the air is cool, in order to prevent too energetic reaction. Friction with snow is employed with safety in our own country, and in the steppes of Russia where these accidents are frequent and grave in consequences. Perseverance for hours in this course is often rewarded with success in apparently desperate cases. Antiseptic dressings are usually demanded when sloughing and ulceration ensue.

[D.] *Dermatitis Medicamentosa.*

The importance of recognizing the fact, that a given eruption is produced by an ingested drug, can scarcely be overestimated from the point of view of the diagnostician. The errors committed in this connection are so frequent and so annoying to the patient that it is

necessary for the physician to inquire very carefully, before treating any cutaneous disease, as to the medicaments previously swallowed by the patient; and also to be prompt to connect any aggravation of a cutaneous disease with remedies ordered by himself for internal use. The following is but an imperfect list of the drugs whose internal administration may be followed by an exanthem; imperfect, because without question many have yet to be recognized as possessing such an action. As to the *modus operandi* of such medicinal agents, for the most part our knowledge on this subject is purely conjectural. Some, for example, the iodide of potassium, are eliminated in part by the glands of the skin, and presumably have thus a local effect upon such emunctories; others, and in this class, the author believes, should be included quinia, induce an urticaria scarcely to be distinguished from an *urticaria ab ingestis*. Some, possibly, operate in either or both ways at different times or in different individuals. The absurdity of supposing that any disease can be "driven out" by the ingestion of such drugs, should be relegated to the specious ignorance which first framed such an hypothesis.

ACONITE.—This drug is said to be productive at certain times of marked diaphoresis with the occurrence of vesiculation and considerable itching. If so, it is possible that the diaphoresis in an irritable skin may be responsible for the trouble.

ANTIPYRINE.—Ernst¹ has been followed by many observers in recording rashes resulting from the administration of antipyrine. The symptoms are discrete and confluent patches of bright red, scarlatiniform, erythematous, and pruritic macules or papules.

ARSENIC.—Erythematous, vesicular, papular, and much more rarely pustular, bullous, and ulcerative lesions, occur upon the face, back, and hands, after the ingestion of arsenic. The well-known effects of the administration of the drug in toxic doses, upon the mucous membranes of the eyes, nose, and mouth, need not be described in this connection; nor yet the grave, gangrenous symptoms, with osseous necrosis, which have been observed in the workers with the metal.

The author has seen a bright red, scarlatiniform blush with few isolated vesicles cover both shoulders of a young woman with a delicate skin after taking three medicinal doses of Fowler's solution, the eruption being present, but less distinct upon the face and hands. In two cases the rash in polymorphic type was limited to the hands alone.

A number of young patients have been sent to the author's clinic from that for nervous diseases, who having taken arsenic in the largest medicinal doses for relief of chorea, presented as a result, a dark discoloration of the skin of the chest and neck chiefly, but also

¹ Citiblt. f. Klin. Med., 1885.

of other parts of the body. This was suggestive of the bronzing seen in Addison's disease. In some instances there had been no other cutaneous symptoms. Guaita and Liège have noted these phenomena, usually in the fifth month after ingestion of the drug.

By far the largest number of such rashes are, however, produced in those previously suffering from cutaneous disease, for whose relief the drug is administered. Here the toxic effect is declared either by—first, increased hyperemia of the skin visible in an erythematous patch, or beneath the scales of a squamous patch; or, as an areola of bright red hue about any aggregations of lesions; second, by simple aggravation of the type of a disease already in existence (recurrence of acuity in a subacute eczema); third, by rapid peripheral extension of a disease which had previously been well limited in contour; fourth, by converting a disease exhibiting uniformity of lesion into one characterized by multiformity. Each of these results might be illustrated by cases.

In a series of eight cases of poisonous effects produced by arsenical paper hangings, and reported by Dr. F. H. Brown,¹ there were, curiously, no cutaneous symptoms.

BELLADONNA, ATROPIA.—The well-known erythematous, scarlatiniform, or reddish efflorescence produced by belladonna and its alkaloids, is usually limited to the upper segment of the body, but may become generalized. It is said to occur more frequently in children, probably because it has been administered largely to individuals of that age under the superstition that it was useful as a prophylactic in scarlatina. Very disagreeable and even dangerous results have followed the instillation into the eye of atropia as a mydriatic, the rash being accompanied by constitutional symptoms.

BORIC ACID.—Modadewkow reports a case in which the pleura was washed out with a five per cent. solution of boric acid, a part of which was not removed. There occurred as a result an erythematous rash over the face, trunk, and extremities.

BROMINE AND ITS COMPOUNDS.—A full and valuable account of the cutaneous effects of this drug and its compounds, when administered internally, is contained in a paper on medicinal eruptions, read by Dr. Arthur Van Harlingen, of Philadelphia, before the American Dermatological Association in 1880. Acneiform lesions, pustules, macules, maculo-papules, papules, eczema-form moist patches, furuncles, urticarial wheals, scales, and ulcers have been induced by swallowing the bromides of potassium, sodium, ammonium, and lithium. By far the most common are the acneiform and pustular lesions, occasionally accompanied by pruritus, which appear upon the face and upper portion of the trunk, though the author has seen the rash very distinct upon the genital region. Duhring reports an

¹ Paper read before the Boston Society for Medical Observation, March 6, 1876.

interesting observation of a case in which the eruption simulated very closely the maculo-papular syphiloderm, the patient having taken the remedy for three years. The eruption first appeared within five or six days after decreasing the dose. Kaposi has observed a case in a nine-months-old suckling, the mother having taken one hundred and twenty grammes of the bromide of potassium in two months, herself not exhibiting traces of eruption. In one patient treated by myself the eruption was generalized, but in no part exaggerated. It occurred in an adult male after three months' continual employment of large doses of the same salt.

Mr. Browse, of Cambridge, England, recommends for relief of these symptoms the application of a solution of salicylic acid, one grain to the ounce (0.066–32.) of water, frequently applied on lint, having successfully treated in this way sores as large as the palm of the hand.

T. C. Fox and Gibbes report condyloma-form lesions in the case of an infant where the histology of the lesions was carefully studied; and Fay, in a child eleven months old, also recognized lesions which had been mistaken for molluscum epitheliale. These were undoubtedly similar to the condyloma-form rash seen in children after the administration of the iodide of potassium.

CANNABIS INDICA.—The only instance thus far reported of an eruption produced by the ingestion of this drug was observed by myself in the case of an adult male, who was extensively covered with papulo-vesicular lesions after swallowing a grain (0.066) of the extract.¹

CHLORAL.—An erythematous rash is the most common of the eruptions produced by chloral, though wheals, red and yellowish papules, vesicles, pustules, and petechial blotches have been observed. It occurs upon the face, neck, trunk, and limbs, of the latter especially on the extensor surfaces. In a man of advanced years, totally deaf, who had slept only under the influence of chloral for four years, the author observed discrete scaly patches as large as saucers over the lower extremities, hands, and feet.

Martinet² reports an erythematous and scarlatiniform rash, occasionally commingled with urticarial and purpuric lesions, occurring upon the face, neck, front of the chest, the extensor surfaces of the larger joints, and the dorsum of the hands and feet. There was no pyrexia nor indisposition, but in cases dyspnoea and cardiac palpitation.

COD-LIVER OIL.—According to Farquharson,³ cod-liver oil after being swallowed is capable of producing an acne. This can be true only of very inferior specimens, such as are not rarely found in the English market.

¹ N. Y. Med. Record, May 11, 1878.

³ Brit. Med. Journ., Feb. 22, 1879.

² Thèse de Paris, 1879.

COPAIBA AND CUBEBS.—The ingestion of copaiba is occasionally followed by a vividly red rash, in the form of discrete macules, more rarely maculo-papules, invading chiefly the lower segments of the extremities and the skin of the belly, but often completely covering the surface. The author has seen the rash occur in dark mulberry-red petechiæ; and always in his experience accompanied by pruritus. Inasmuch as the drug is often administered for the relief of a venereal disorder not syphilitic, care should always be taken not to confound the eruption it may excite with the early macular syphiloderm. Cubebs is much more rarely followed by a similar result.

CUNDURANGO.—Guntz¹ reports the occurrence of furuncular and acneiform lesions in twenty patients out of one thousand who were taking cundurango for the relief of syphilis.

DIGITALIS.—In Behrend's treatise on diseases of the skin² reference is made to cases where macular and maculo-papular rashes succeeded the ingestion of digitalis.

IODINE AND ITS COMPOUNDS.—The iodide of potassium is responsible for the larger number of all eruptions in this category. The frequent employment of this drug and the very marked influence which it possesses over the skin, render the study of these morbid results important.

Unlike many of the other substances in the list, the iodine compounds are followed by some species of rash in probably the larger number of all persons who swallow them.

The resulting lesions may be macular, papular, vesicular, bullous, pustular, petechial, multiform, or in the form of circumscribed, subcutaneous abscesses.

The macular rash is best seen fully developed over the upper extremities, in discrete erythematous patches or in a diffuse blush. The cases in which the author has studied it, all displayed symmetry. The hands were chiefly affected, and suggested in appearance the dyed hands of the aniline worker. It is said to assume at times the papular type, a transformation the author has not noticed, though he has seen coexistence of papules upon the face.

Berengnier describes a scarlatiniform rash of sudden occurrence upon the surface of which were numerous minute discrete vesicles. Eczema-form eruptions with abundant serous exudations are also reported.

A number of interesting cases are on record where the administration of the drug was followed by the production of bullæ. Bumstead, Taylor, Duhring, Tilbury Fox, and Finny, have described such in adults, and the author has seen several cases in children.³ Hallopeau⁴ also reports a case in which a bullous eruption followed

¹ Vierteljahrsscht. f. Derm. u. Syph., 1882.

² Braunschweig, 1879.

³ Arch. of Derm., Oct. 1870. Journ. of Cutan. and Ven. Dis., 1886, p. 383.

⁴ Union Méd., March 25, 1882.

the ingestion of the iodide of potassium. The patient died, and the post-mortem appearances are reported in full. The eruption occurred chiefly about the head, neck, and the upper extremities. The author has called attention to the significant rarity of vesicular and bullous lesions in acquired syphilis, and suggested that at least some of the cases on record were those of rashes induced by the remedy given for relief of the disease.

A careful analysis of these bullous rashes leads to their division into three categories: first, those occurring often with fatal results in cachectic adult patients; second, those occurring as part of the eruptive lesions in a polymorphic group; third, those occurring in well nourished children, taking on the appearance of molluscum epitheliale and condyloma lesions, usually compounded of papulo-vesicles and pustules. Erythanthemata of a similar type have been also recognized in infants after the ingestion of bromide of potassium.

The pustules induced by the administration of iodine compounds are seen chiefly upon the face, neck, trunk, and arms. They are usually seated upon a firm base, and may be followed by cicatrices. Duhring has seen an annular patch upon the forehead, made up of minute vesico-pustules, which eventually developed into a globular violaceous mass, nearly two inches in diameter. On several occasions the author has observed large cherry-sized, tubercular elevations abruptly rising from the surface of the integument, and presenting a cribriform appearance, which showed the open ducts of several suppurating follicles (chin, cheek, nose).

The purpuric rash occurs in petechial macules, discrete and miliary, situated chiefly on the lower extremities. In a case reported by Dr. Mackenzie (quoted by Van Harlingen) a single dose of two and a half grains (0.166) in an infant, was followed by a fatal result after the petechiæ appeared.

JABORANDI and PILOCARPINE are capable, when ingested, of inducing free diaphoresis, and erythematous macules, wheals, and pin-head sized papules have been seen upon the surface as a result.

MERCURY.—The statement that mercury when ingested is capable of producing an erythematous rash upon the surface of the skin, is made by several authors of reputation. In view of the fact that the metal has been, in its various compounds, administered for so long a period of time, and for so many various diseases without the production of cutaneous symptoms, it is a fair hypothesis that the few reported cases are those in which there was coincidence rather than causation. The author has had the opportunity of observing a large number of individuals in whom the drug had been both properly and very injudiciously employed for long periods of time, and has not been able in a single instance to discover any evidences upon which to base a belief in its power to produce a cutaneous exanthem. A similar statement was made by Dr. White, of Boston, when this subject was under discussion in the American Dermatological Associa-

tion. Mercurials, when applied to the external surface of the body are, as is well known, capable of exciting, in various degrees, cutaneous irritation and inflammation.

OPIUM AND ITS ALKALOIDS.—Erythema, wheals, and occasionally intense pruritus, with oedema, and subsequent desquamation, have followed the ingestion of opium and several of its alkaloids, notably morphia. In its mildest expression this cutaneous effect is limited to a characteristic itching about the nostrils, which can be perceived in a large proportion of all patients as soon as the general effect of the opiate becomes apparent. In several cases the author has observed an intense and distressing general pruritus without efflorescence; and in some instances has been certain that the subsequent urticarial efflorescence was induced by the free diaphoresis which the medicament induced. This is a matter of some practical moment, as the use of an anodyne for the purpose of procuring sleep for a patient tormented with a nocturnal pruritus, would seem to be occasionally indicated. Inasmuch as chloral, the bromide of potassium, and the opiates are all capable of aggravating such distress, great caution is in such emergencies needful. In general, it may be said that the employment of these and similar remedies for such a purpose, should be interpreted as a confession of weakness on the part of the physician, who ought to be able to alleviate the distress of his patient by a judicious employment of topical remedies.

PHOSPHORUS.—Hasse (quoted by Van Harlingen) cites the case of a young girl who exhibited a pemphigoid rash after the ingestion of phosphoric acid; and, according to Farquharson,¹ phosphorus itself is occasionally responsible for purpura with gastro-intestinal derangement and jaundice preceding a fatal issue.

PODOPHYLLIN.—Winterburn² reports that those who work in resinoid podophyllin, are liable to suffer, as a consequence of this exposure, from a cutaneous disease of the scrotum.

QUININE, CINCHONA, AND ITS ALKALOIDS.—Morrow³ has collected in an interesting paper, the record of over sixty cases of quinine exanthem, and shows that its prevailing type is exanthematous, the rash being of a bright vivid hue, disappearing on pressure, and resembling scarlatina. Other lesions produced are wheals, papules, vesicles, petechiæ, hæmorrhagic purpura, bullæ, and, in one instance, an intense localized dermatitis with commencing gangrene of the scrotum. In some cases the rash reappeared on repetition of the dose, and even after recourse to the other alkaloids. The subjects were mostly women. As with most of the other exanthem-producing drugs, small doses, where the idiosyncrasy existed, sufficed for the effect. The author has seen the rash in an adult male,

¹ Loc. cit.

² Louisville Med. News, April 21, 1882

³ N. Y. Med. Journ., March, 1880, p. 244.

who, after taking two grains (0.133), of the sulphate of quinia for the first time in six years, exhibited an efflorescence over the entire surface of the body, of discrete, finger-nail sized, salmon- and pinkish-tinted, scarcely elevated patches, accompanied by a moderate pruritus. A repetition of the dose was followed by a recurrence of the exanthem.

In several cases desquamation is reported as resulting from the rash. As to the occurrence of the general symptoms recognized under the title of cinchonism (tinnitus aurium, etc.), these may and may not accompany the lesions. Morrow makes the pertinent suggestion, in view of the frequent similarity of the rash to that exhibited in scarlatina, that many cases hitherto recorded as recurrent attacks of that disease and measles, with other anomalous cutaneous eruptions, may have been instances of the quinine exanthem.

SALICYLIC ACID AND THE SALICYLATES.—Reports of cases where these substances after ingestion have produced cutaneous symptoms, have been made by Heinlein, Wheeler, and Freudenberg, all cited by Van Harlingen. The symptoms were diffused redness, urticarial lesions, vesicles, pustules, petechiæ, and vibices, accompanied by intense pruritus, and followed by desquamation.

SANTONINE.—A generalized eruption of urticarial lesions seated upon a reddened surface, and accompanied by œdema, is reported by Sieveking as occurring in a child to whom santonine had been administered as a vermifuge.¹

SODIUM BENZOATE.—Rohé² reports two cases in which an erythematous rash, with well-defined border, accompanied by itching and slight desquamation, occurred during the use of the benzoate of sodium. The patients were a woman, aged thirty-five, and a boy with diphtheria. The eruption disappeared on the discontinuance of the remedy, and was made successively to appear and disappear by its alternate use and disuse.

SODIUM BIBORATE.—Gowers³ reports the occurrence, especially on the arms, but also over the trunk and legs, of an eruption resembling psoriasis, after the ingestion of the biborate of sodium. Some of the resulting patches were one inch and a half in diameter. Three cases in all are collated. In two the eruption faded when a solution of arsenic was added to the sodium salt.

STRAMONIUM.—Deschamps (cited by Duhring) reports an erythematous rash after the administration of the thorn-apple.

STRYCHNIA.—Skinner (cited by Van Harlingen) reports a case where an eruption of six weeks' duration ensued upon the adminis-

¹ British Medical Journal, February 18, 1871.

² Maryland Medical Journal, June 15, 1881, p. 91.

³ Lancet, September 24, 1881.

tration of quinine and strychnia together; the former in the dose of one and a half grains (0.10), the latter in the dose of one-twenty-fourth of a grain (0.0025).

TANACETUM.—A varioliform eruption produced by the ingestion of a drachm and a half (6.) of the oil of tansy, administered for abortifacient purposes, is reported by Porter.¹ There were antecedent clonic convulsions. The result was not fatal.

TAR AND TURPENTINE.—Erythematous, vesicular, and papular rashes are reported as resulting from the ingestion of these substances.

The diagnosis of the various medicinal rashes described above does not, fortunately, demand a recognition of the essential peculiarities impressed upon each by the exciting cause, since in many cases such peculiarities do not exist. The urticariæ resulting from the ingestion of "head-cheese," quinine, and chloral, may be absolutely indistinguishable. But to establish the fact that a medicamentous eruption is present in any given case, is a long step in the direction of reaching the precise cause that has been in that case effective. This fact must often be obtained from the lips of the patient. The medicinal rashes are in general remarkable for their sudden appearance, their symmetry, their diffusion over large areas of the integument, the presence of pruritus, the absence of fever, and their existence alike upon exposed and protected surfaces of the skin, hinting thus at the action of some cause not operating externally. Excluding syphilis and the exanthematous fevers, a generalized rash of sudden occurrence should always raise the suspicion of a dermatitis medicamentosa. Similarly in cases of preëxisting cutaneous disease, syphilis, eczema, or psoriasis, the sudden occurrence of lesions of a new type widely diffused, or of rapid aggravation *in situ*, or of speedy extension as to area of those already in existence, should awaken the suspicion, if there be fever, of the exanthemata; and, without a febrile process, of the medicinal rashes. Thus the author has seen two patients with eczema exhibit rapid rise in temperature, and subsequently develop a generalized variolous rash; and it is a matter of common experience to examine patients on the eve of a macular syphiloderm, or even long past the eruptive stage of that disease, showing their faces, necks, and shoulders covered with an acneiform rash produced by the potassium iodide. The practitioner cannot be too strongly urged to view with exceeding watchfulness the skin of any patient affected with either of the common disorders, eczema, acne, and psoriasis, when the eruption in any instance becomes anomalous as to type, distribution, or symptoms. An illustrative example has come under my observation since the first paragraph of this chapter was written. A physician, on a trip from Colorado to Chicago, with a long standing eczema of the scrotum and thigh, suddenly exhibited tumefaction of both hands with small

¹ New England Medical Journal, October 15, 1881.

egg-sized, discrete, dull red plaques over the palms and dorsa ; and in the centre of nearly all such lesions a firm, whitish, elevated wheal accompanied by severe burning, tingling, and pricking sensations. He had been swallowing "bromidia," a proprietary preparation containing the bromide of potassium, the hydrate of chloral, and cannabis indica, each single drug being capable of inducing an exanthem, and yet he had not the slightest suspicion of the real nature of his symptoms, having been questioned by a brother physician, to whom he exhibited his hands, as to the possibility of syphilis.

The medicamentous rashes, as a rule, disappear rapidly after the withdrawal of the exciting cause, and require no further management. In some cases the soothing lotions, baths, and dusting powders employed in the treatment of acute eczema may be required.

It should not be forgotten that the patient who exhibits these lesions is usually one who has been suffering from the real or fancied disease for relief of which the drug was taken, and that condition may require recognition and management.

In Morrow's contribution to this subject, it is clearly shown that the same drug may produce a variety of eruptive phenomena, and that the same eruptive features may result from the ingestion of different drugs. He points to what he concludes to be the neurotic origin of many of these rashes, and believes that the proof is inconclusive that these are, to any considerable degree, brought about by elimination through the cutaneous glands, of the noxious element introduced with the drug. Tilden,¹ however, calls attention to the fact that many of these eruptive phenomena are of the nature of angioneuroses, similar to Trousseau's "*tache cérébrale*," requiring often increase in the irritability of the cutaneous vessels, with exudation of serum, outwandering of cells, and, in case of hæmorrhagic lesions, some change in the vascular walls themselves.

[E.] Dermatitis Gangrænosa.

Idiopathic and symptomatic cases of dermatitis terminating in gangrene, where no history of external violence or caustic application has been obtained, are reported by several authors. In most of these, single or multiple, circumscribed, erythematous or hæmorrhagic macules have been followed by superficial gangrene with sloughing, the process being in some instances attended with constitutional symptoms of such gravity as to result fatally. In certain other cases the affected patches presented at an early period the mummified and alabaster white aspect, noted at times in dermatitis calorica. In establishing a diagnosis in such cases, care should be taken to exclude the forms of senile gangrene occurring in the lower extremities as the result of vascular calcification, when the skin and deeper tissues are alike invaded ; as also the cases of simulated eruption produced by caustics upon the skin with a view to deception. In the latter

¹ Pathogenesis of Certain Affections of the Skin, June 9, 1885.

class, a distinguishing feature of the lesions is their occurrence chiefly upon those parts of the body most accessible to the hands; and, in persons not ambidextrous, upon those parts which the hand predominantly employed can most readily reach.

Cases of "symmetrical dry gangrene of the fingers and toes," multiple ulceration terminating in gangrene, "asphyxia of the extremities," and others described under similar titles, are annually recorded. Some of them appear to have a neurotic or angio-neurotic origin; some are peripheral symptoms of diseases of internal organs or of the vessels; some are cases of locomotor ataxia, the shrivelled or gangrenous spots on the hands and feet being merely early symptoms of the perverted nutrition due to the spinal sclerosis. Atkinson's case,¹ and that of Eichhoff and C. Boeck, assigned by this author to the group of affections termed by Simon "multiple cachectic gangrene," seem to belong to this same category which includes the "symmetrical gangrene" of Raynaud, or, as it is often termed, "Raynaud's disease." Mr. Hutchinson has reported instances where the tendency to this disorder appeared to be transmitted through three generations, the lesions not progressing in some individuals of the group beyond the "asphyxiated" condition to that of gangrene. Terrillon² reports perforations of the hand as preceding symptoms of a disease of the central nervous system supposed to be locomotor ataxia, which resemble the similar lesions of the feet reported by Atkin³ in a case of undoubted ataxia.

Petit and Verneuil⁴ have referred these disorders to a malarial origin.

Drs. Flynn and Clark, of New York,⁵ have also reported symmetrical gangrene of the extremities in men of advanced years.

In many of these cases the preliminary stages of the process either did not exist, or were too transitory for observation. The first appreciable external symptoms were the perforating ulcer, the shrivelling phalanx, the gangrenous patch, or the completely "asphyxiated" tissue. For the relations of these to a large group of tropho-neurotic affections of the skin, the reader is referred to the chapter devoted to the neuroses.

Erysipelas.

Gr. *έρυθρός*, red; *πέλλα*, the skin.

Erysipelas is an acute and specific inflammation of the skin and subcutaneous tissue, characterized by diffuse, shining redness, pain, swelling, and elevated temperature of the affected part, terminating in desquamation, and usually accompanied by fever.

Symptoms.—The disease is usually preceded by a prodromic period of malaise, lasting for twenty-four hours or less, which may be

¹ Multiple Cutaneous Ulceration. Amer. Journ. of the Med. Sci., 1884.

² Rev. Médical, June 13, 1885.

⁴ Rév. de Chirurg., Nos. 1, 3, 6, and 9, 1883.

³ Brit. Med. Journ., July 24, 1886.

⁵ N. Y. Med. Record, 1886.

ushered in by one or several chills followed by febrile symptoms. The latter are accompanied by anorexia and often by vomiting with general depression and headache.

The eruptive symptoms are generally first displayed at a given point, from which the disease progresses. It is commonly first noticed in a nut- or egg-sized patch, the integument of which is tumid, slightly elevated, irregular in contour, distinctly circumscribed, and presents a rosy or crimson-reddish color with a peculiarly smooth and characteristic shining or glazed appearance. The sensations awakened may be those of moderate pruritus, pain, heat, or burning. To the touch, the affected part is tender, moderately firm, and perceptibly hotter than normal. The color fades under pressure to a yellowish-white.

In typical cases, the erysipelatous blush and swelling spread over an area which may be of the size of the palm, or may even cover the surface of an entire limb or region of the body. In cases of moderate grade, the inflammation attains a maximum of extent and severity within a week, remains apparently unaltered for a day or more, and then begins to abate, with amelioration of all the concomitant symptoms. The fever which often precedes the eruption, continues unabated during its progress, the temperature rising to 105° or 106° F., with nocturnal exacerbation, cephalic and lumbar pain, dryness of the tongue, gastric distress, and occasional delirium. As involution of the disorder is accomplished, the redness is replaced by the brownish, bluish-red, and dirty-white shades often seen after the disappearance of erythema multiforme, the epidermis finally desquamating in various degrees according to the extent of the preceding inflammation.

In other cases, where the exudation of serum beneath the epidermis has been rapid, the latter is raised in the form of vesicles, pustules, or bullæ, more often the latter; and, precisely as in the severe forms of dermatitis caloricæ, with which erysipelas presents a certain analogy, gangrene of the skin may result in the part affected. This is particularly apt to follow the disorder when it attacks the seat of surgical wounds and injuries.

ERYSIPELAS AMBULANS is a term used to describe that form of the affection in which the erysipelatous blush, after involving a given area, spreads with greater or less rapidity to the parts in the vicinage, either by direct extension and uniform advancement in one direction, of the tumid and distinctly circumscribed border; or by linear, digital, or irregular prolongations radiating from the inflammatory focus. As the blush and swelling advance in one direction, there is usually correspondingly rapid disappearance on the other. At other times, the disease, while extending to a new area and abandoning the old, is relighted in the latter, and thus an irregularly involved and irregularly extending erysipelatous surface presents for weeks the varying phenomena of the disease. In yet other cases again, chiefly those in which there has been a history of traumatism, a long erysipelatous linear streak or band may spread from the site of the

traumatism in one direction or another, suggesting the indurated lines observed in lymphangitis. In severe cases, the febrile, nervous, and other symptoms are grave, including coma, delirium, meningitis, and the signs of serious involvement of the lungs, pericardium, pleura, and bowels. Metastatic abscesses may also occur in the cutaneous and subcutaneous tissues, the joints, peritoneal cavity, and even in the viscera. Death may result from these complications, or from shock, exhaustion, or pyæmia.

Surgical accidents aside, the face is the most common seat of the disease, where it may be first seen upon one side of the nose, one cheek, the lips, or the eyelid. It often attacks the lobe of the ear after the operation of piercing the lobule for the insertion of ear-rings in women. Thence it may extend over the whole face, inclusive of the mucous linings of the mouth and nose, which present a dry, tumid, and glazed appearance, suggestive of the symptoms displayed upon the skin.

The inflammation may extend to the hairy parts, but in many cases it exhibits a species of reluctance to transgress the limits there presented. It may be noticed in cases of mild grade where no applications have been made to arrest a local progress, that the elevated border spreads symmetrically to within a few lines of the male beard or the hairs at the edge of the forehead, and there spontaneously rests. In severer grades these limits are readily surpassed; and then, as a rule, the extension is rapid and formidable. In this way the entire head may become enormously swollen, suggesting to a casual observer that it is fully twice its normal size. The patient may then be greatly disfigured; his scarlet lips, swollen, parted, and permitting the escape of saliva; the ears, as usual when greatly enlarged, projecting in a marked degree from the side of the head; the lids œdematous and incapable of separation; the face, disfigured by bullæ or crusts; and the mind disordered by violence of the fever or the accessions of delirium. When recovery ensues, the hairs are apt to fall.

All other regions of the body may be invaded, as the vaccinated arm, the leg whose skin is involved in venous varicosities, the scrotum or umbilicus of the infant, the genitalia of the newly delivered woman, the breast of the nursing mother, and every surface which has been the seat of punctured, incised, contused, or poisoned wounds, or other accidents of the integument.

Several authors describe habitually recurrent and CHRONIC forms of ERYSIPELAS, whose identity with the disease here described, it is difficult to establish. The diagnostician is sufficiently often consulted in cases where an erythematous eczema of the face, an acne rosacea, or a symptomatic erythema, is described by a patient as chronic or recurrent "erysipelas." The lesions to which such terms, however, are restricted by careful writers, are often forms of chronic dermatitis, such, for example, as occasionally follow dermatitis calorica. Instances occur in which the face, or parts of it, are the seat of a low grade of inflammation with local heat, swelling, redness, consid-

erable infiltration, and some tenderness, the part being irritable and worse after exposure to a high wind or after excesses at the table. But the most of such cases fail to exhibit the distinct imprint of erysipelas; they are not only chronic in course, but exceedingly indolent, lasting for years; they are unaccompanied by fever; they are distinctly limited in all accesses of aggravation to the same part of the face; they are never characterized by a bullous efflorescence; they never completely disappear; many occur in the subjects of chronic alcoholism.

The febrile symptoms are, throughout, persistent and characteristic of a specific toxæmia. The temperature, as has been seen, may reach 105°–107° F., with vespertine exacerbations and remissions; it may also become subnormal. If not relieved in the course of seven or eight days, complications may be expected. These are œdema, abscess, phlegmonous inflammation, gangrene, and inflammatory accidents involving the membranes of the brain, lungs, heart, bowels, kidneys, peritoneum, and joints.

Etiology.—The modern view of the invariable origin of erysipelas from some point, however insignificant as to size, where a morbid germ has secured access to the economy, is generally accepted and adds interest to the study of the local manifestation of the disease. Whether it be the slightest or severest traumatism, an erosion, a torn pustule, or a puncture by a pin, such lesions are now interrogated whenever erysipelas occurs in any part of the body or in the course of any other disease.

In the face, catarrhal and ulcerative processes involving the mucous membrane of the mouth, ears, and nose, are often the cause of an erysipelas, these processes occurring in a wide range of disorders from syphilis of the nasal bones to caries of the teeth. Injuries of, and surgical operations upon the scalp not conducted with antiseptic precautions, and the common piercing of the lobe of the ear in women and female children for the insertion of ear-rings, may be followed by the appearance of the disease upon the scalp, as a result of which the hair often falls. *Fistulæ*, vaccination, lesions of the tender umbilicus of the newly born infant, and railroad accidents may be named as common causes of the disease in other regions.

Predisposing causes of this disease are to be sought for in cachexia, epidemic influences, traumatism, violation of hygienic rules, and occasionally, the recurrence of previous attacks. Besides these, it is alleged that constitutional predisposition and particular articles of diet may be responsible for the disease (mussels).

If the disease be invariably the result of infection due to the presence of a micrococcus, the essential cause lies in the specific germ, in the absence of which none of the predisposing causes named can be effective. It is clear, however, that the predisposing causes suggested are those in which the multiplication of such germs and their entrance to the general economy are most facilitated.

The infectious nature of erysipelas has been demonstrated by clinical proof, and the experiments of many observers, including Hüter,

Nepveu, Wahlberg, Lukomsky, Koch, Orth, Fehleisen,¹ and others. The micrococci recognized by them were seen in great abundance, often arranged in chains, in the corium, subcutaneous tissue, and lymph spaces of erysipelatous skin, never in the bloodvessels.

Other views as to the etiology of the disease have been advanced. Hebra and Kaposi believed it to be due to the secondary products of local inflammation; others have held to a "malarial" origin (Cohnheim). Among later observers, Tillmans concludes that the infection of the disease may be transmitted by fluids both containing micrococci and without them.

The conclusion is irresistible that the disease is always the result of the admission of specific bacteria to the human body by the avenue of a lesion of the surface, however insignificant in size.

Women are rather more subject to the disease than men. The disorder is also apt to occur in spring and autumn.

Pathology.—Under the microscope, the skin and subcutaneous tissues are seen to be infiltrated, the exudate being more serous and less rich in protoplasm than that observed in ordinary phlegmonous inflammation of the skin. The bullæ represent rapid exudation of this same serosity to the congested epidermis, and the elevation of the latter in consequence. The elements of the rete and connective tissue are for the same reason swollen, the lymphatic and bloodvessels enlarged, and the cutaneous follicles engorged, the root-sheaths of the hairs being occasionally separated, necessitating thus the temporary loss of the pilary growth. In proportion to the severity of the exudative process, pus corpuscles may appear and represent, for the most part, degenerative changes in the subcutaneous tissues resulting in abscess. The phenomena are, in short, those of superficial or deep-spreading dermatitis. After death, the skin which has been the seat of the disease cannot be distinguished microscopically from that of another body.

Diagnosis.—Erysipelas is to be distinguished from the erythemata, from dermatitis of various grades, from eczema, and from scarlatina. As a rule, its recognition from all is readily effected, when the presence of the fever in erysipelas is had in view, as also the peculiar shining, swollen, and rosy-reddish to damask hue of the affected parts. The redness is never produced as in scarlatina by multiplicity of reddish puncta, nor is it so widely diffused as in that disease. Erysipelas may be at times accompanied by a pruritic sensation, but the patch which it affects is never by any possibility scratched. By this simple test alone one may often distinguish an erysipelas of the face from an eczema of the same region in a child. From a chronic dermatitis with thickening of the affected tissues and redness of the surface, erysipelas is to be distinguished by its tendency to spread, by its acute career, by its frequent association with bullous or vesicular lesions, and by the color, outline, and raised border of the affected patch. However, it must be understood that to these localized patches of chronic dermatitis several authors have given the name,

¹ Die Aetiologie des Erysipelas. Berlin, 1883.

chronic erysipelas, the difference between the views held on this point being chiefly one of terms.

Treatment.—Upon the continent of Europe, the therapeutic management of erysipelas is in general limited to the employment of such systemic and topical measures as are specially required in each case. Quinine is administered whenever indicated by the temperature record; and the erysipelatous surface is either left exposed to the air, covered by dry compresses, moistened by cold or hot aqueous lotions, or anointed with unguents, simple, mercurial, or anodyne, as suggested in each case. Occasionally cataplasms are applied over the inflamed surface. Abscesses, whether subcutaneous or connected with a carious tooth, are opened; the contents of all pustules evacuated; and crusts carefully removed. Kaposi lays stress upon freeing the nasal cavities of all inflammatory products, whenever the face is attacked.

The method of treating erysipelas by the administration of the tincture of iron internally has long been popularized among American practitioners. This preparation is given in full doses, from twenty to fifty drops, day and night every two to three hours, irrespective of the febrile state. When the erysipelatous blush has a distinctly circumscribed outline, the annular zone extending for an inch or more in width upon the sound and affected skin is either covered with the tincture of iodine, pencilled with a crayon of nitrate of silver, or painted with a saturated solution of the same salt. This is done with a view to limit the extension of the disease. It is true that these measures will not always succeed, but it is erroneous to assert with some authors that they always fail. Certain it is that, whether effective or not in the production of the result, the advancing border of the disease will often fail to surpass the limits thus artificially described. Collodion has been employed for a similar purpose, and lately Darlin¹ has written in advocacy of the revival of this method of treating the disorder, basing its claim on the fact that it diminishes the temperature of the part thus protected, and that, by the compression excited, it interferes with septic absorption. Heppel² recommends the painting over the surface of a ten per cent. solution of carbolic acid in alcohol, as an abortive treatment, for which Braithwaite³ substitutes a similar solution of tannin.

Excellent results are occasionally reached in the local treatment of erysipelas, first by attempting to limit the extension of the disease by the application of the tincture of iodine over the peripheral zone; and, secondly, by retaining over the entire surface affected, neatly applied compresses saturated with a solution of the hyposulphite of sodium in the strength of about one drachm (4.) to the ounce (32.). Dr. Spencer, of the United States Army, has frequently seen the disorder upon the face entirely relieved in this way in forty-eight hours.

¹ Bull. Gén. de Thér., 1881, vol. ii. p. 239.

² Arch. of Derm., April, 1881.

³ Brit. Med. Journ., April, 1881.

With many judicious practitioners all attempts to limit the extension of the disease by local applications of an irritating sort (corrosive sublimate, nitrate of silver, carbolic acid, tar, turpentine, etc.) are condemned as positively injurious. Dry heat is applied by the aid of cotton or wool; or cold compresses are laid over the part; or iced lead lotions with intermissions of application; or salicylic acid, boric acid, iodoform, or iodoform, in powder. Resorcin in solution has been followed in some cases by excellent results.

Erysipelas rarely attacks a patient in vigorous health. The large majority of all the subjects of the disease are either those who have previously suffered from manifest general ill-health, or who have been complaining of local ailments, trifling wounds, nasal catarrh, or surgical accidents. It is these precedent conditions which often demand the special attention of the physician or surgeon.

It is needless to add that all surgical indications are to be fully met when these are present: pus is to be evacuated, crusts removed, and drainage secured. The physician and surgeon alike should never forget that the disease is infectious, that the patient is to be isolated, and to be supplied with an abundance of pure air; and that fomites, surgical instruments, and even the non-disinfected hands of the attendants are capable of transmitting the disease.

Finally, there are forms of erysipelas which are remediless. These are usually septic in character. The scarlet blush spreading from an irreparable injury of long duration, is often the last protest of nature against the damage which even her final resort of gangrene will not avail to repair.

Prognosis.—Under favorable circumstances, erysipelas, even of severe grade and extensive invasion, terminates in complete resolution. Reserve should be made, however, in every case, as a serious complication has often transformed the simplest into the gravest forms of the disease. The author has seen an erysipelas of mild grade originating in the irritation of the lobe of the ear by an ear ring, transmitted to a child who died with gangrene of the entire mucous lining of the oral cavity. The very young, the cachectic, the victims of drink, the aged, the inmates of hospital wards depressed by other illness, and those mentally distressed by destitution and neglect, are particularly liable to suffer from grave and fatal forms of the malady.

The patients who fill the beds in most lying-in hospitals are young women, either unmarried or deserted by their husbands, and unprovided with the necessities of life by those upon whom such a responsibility rests. The mental depression thus originating in connection with the septicæmic influences too common in all large charities, is responsible for much of the relation which erysipelas often seems to sustain to the puerperal state, as also for the appalling mortality which it may exhibit under these circumstances.

Furunculus.

Lat. *furunculus*, a petty knave.

Furunculosis is a disease characterized by the occurrence of one or more circumscribed, cutaneous or subcutaneous abscesses called furuncles, which usually terminate by necrosis of tissue in the centre of the phlegmon, its expulsion in the form of pus or a core, and a resulting cicatrix.

Symptoms.—Furuncles, or Boils, commonly begin as both tender and painful indurations in the skin or its subjacent tissues, the summit of which soon becomes visible in the epidermis as a reddish punctum. It is the result of an active inflammatory process, limited to a definite area, and of greatest intensity at the centre of the involved mass. This centre is often represented by a hair-follicle, the pustule that forms subsequently being perforated by a hair.

More or less rapidly thereafter these symptoms are succeeded by increased redness, heat, and tumefaction, the latter producing a nut- or egg-sized tuberosity, well projected from the surface, or fairly imbedded within or beneath the derma. A yellowish point in the centre of the erythematous swelling soon announces the occurrence of suppuration. When accidentally or artificially opened at this summit, exit is given to a thick yellowish pus which may be commingled with blood from the traumatism of the neighboring capillaries. The small abscess may then, after discharging its purulent contents for a few days, gradually close by granulation, or may also expel from its cavity a tenacious, pus-covered, yellowish-green slough, known as the "core." This evacuation is usually followed by relief of the tense and throbbing pain which is the well-known subjective characteristic of the furuncle.

The length of time requisite for the completion of this process varies, with the extent of tissue involved, from a few days to several weeks. Boils may occur in any part of the body, but are most common about the face, the auricular region, the neck, the armpits, the ano-genital region, the hips, the buttocks, the breast, and the extremities. They may occur as single or multiple lesions, or may succeed each other in crops, especially about the buttocks, trunk, and thighs, for a period of several months. It is this succession of boils to which the term furunculosis is specially applied. The disease of the skin, in such cases, may produce a constitutional effect manifested in pyrexia. This is usually encountered when the furuncles are few and short-lived, only in individuals of irritable constitutions. There is also a decided chloro-anæmia due to the pain, fever, purulent drain, derangement of the nervous centres, inappetence, and consequent perversion of nutrition.

The sequelæ of boils are maculations of a violaceous tint, often perceptible in the skin for weeks and even months after their disappearance; and cicatrices, pin-head to coin-sized, which are permanent.

Etiology.—The causes of furunculosis, as also of a single furuncle,

are often exceedingly obscure; and it must be admitted that the subject requires more extended study. It is true that both conditions are encountered in typical subjects of "hospitalism," where anæmia, asthenia, marasmus, malnutrition, and exhaustion resulting from excesses, from grave general disease, from low fevers, and from nervous strain, play a prominent part. But the reverse is also true. The author has recently, for example, had under his care a gentleman of superb physique, active habits of life, and large wealth, who availed himself of all the resources of medical skill, and who had yet suffered for six months from a persistent furunculosis. Few actively engaged practitioners have failed to see similar cases.

On the other hand, scratching, eczema, scabies and other cutaneous diseases, lice, and external irritants of various sorts are responsible for many boils, especially those that are few and not followed by similar lesions. When, however, such sequence occurs, it should never be forgotten that the furuncles, if sufficiently numerous and large, are amply capable of disturbing the general economy. The collar-button at the back of the neck; the edges of an unyielding corset, for one unaccustomed to it; a hard bench; the saddle-tree; and many similar articles, may be the exciting cause of furuncles.

Account should always be had, in cases of persistent furunculosis, of externally operating poisons. In this category must be included sewer-gas emanations, arsenical wall-papers, and the poisons handled in the trades, *e. g.*, by dyers, lead-manufacturers, etc.

Lastly, it is exceedingly common for patients thus affected to apply to practitioners for remedies intended to "purify the blood;" and, inasmuch as the iodide of potassium is often mischievously prescribed in response to this demand, the original trouble is thus enhanced to a manifold extent. Many cases of furunculosis are instances of boils resulting originally from external irritation, which have greatly multiplied and finally profoundly affected the system under the impulse of the so-called "blood-purifying" process.

Pathology.—Authors have attempted to explain the phenomena of furuncle by supposing the process to be due to inflammation attacking a sebaceous follicle in the derma; or a pilary follicle or sweat-gland beneath the skin; or the peri-follicular tissues; or the connective tissue pedicle which passes downward from the fundus of the hair-follicle to the subcutaneous tissue; or the blood and lymphatic vessels which surround the sac. It is reasonable to suppose that they are all in the right. No one of these component parts of the skin is known to be exempt from the changes which are induced by the inflammatory process. It is difficult to discover in the furuncular lesion any symptoms which set it apart from the other results of localized inflammation, its phenomena differing from those of ecthyma, acne, pustular eczema, anthrax, etc., only by the seat and extent of the inflammation. The core of the furuncle represents a necrosis induced by the violence of the exudation, and so does the gangrenous slough which falls after a severe dermatitis calorica. The core of the furuncle is moist, yellowish, and puriform, because it is

completely immeshed beneath the epidermis, and pus-soaked. The core or slough of a gangrenous dermatitis may be as dry as a crust, from desiccation in consequence of exposure to the air, or be in various degrees moistened by the fluids escaping from the tissues beneath. Where there is no core in furunculus, this absence is probably due to the fact that the purulent products of the inflammation pass with readiness from the peripheral to the central parts of the phlegmon without having to leak through or between, or to be pressed against, masses of centrally disposed elements, whose vitality is thus the more readily lost. Inflammation of tissue in a practically closed chamber, under tense pressure, under slight pressure, exposed freely to the air, or in all grades protected from it, will always differ in its phenomena. It is wiser to attribute these differences to the circumstances under which it is displayed than to any peculiarities in the nature of the process itself.

The contagious character and parasitic origin of furuncles have been studied by a number of observers. Gingéot,¹ Startin, Trastour, Löwenberg, Pick, Pasteur, and others have, with varying success, reproduced these lesions by experimental inoculation. The name *torula pyogenica* has been given to a vegetable parasite recognized in furuncular products, which, however, in development, is to a marked degree modified by the nature of the site in which it is implanted.

It is with these demonstrations in view that Gingéot suggests the employment of parasitocides in the treatment of furunculosis, the acid nitrate of mercury, iodine in tincture, carbolic acid, and borated alcohol. Internally sulphur and the hyposulphite of sodium in large dilution are administered.

Diagnosis.—Boils are to be distinguished from carbuncles by the exaggerated symptoms of the latter, described below. Circumscribed furuncular abscesses of the groins and axillæ are not to be confounded with suppurating, sympathetic, or virulent buboes of these regions, associated with genital or extra-genital, contagious, venereal sores. This goes without saying; but many such errors have been made. Furuncles of the anal and genital region may be significant of surgical affections of the neighboring parts (perineal, peri-prostatic, peri-urethral, and scrotal abscesses in men; suppuration of the vulvo-vaginal gland in women, etc.).

Treatment.—The debilitated constitution of many patients affected with boils indicates clearly the need of a tonic regimen, including the administration of iron, quinine, and strychnine, the mineral acids, and, contrary to the generally accepted opinion of the laity, a generous diet of milk, cream, eggs, and fresh meats. To these, wines and malt liquors may be at times added with advantage. Change of climate, of diet, of cooks, and of the habits of life is most serviceable in cases of prolonged furunculosis. The mineral waters, at some of our health resorts, prove especially valuable for the debility which often results from these disorders. The internal remedies which

¹ Bulletin gén de Thérap., Jan., Feb., and Mar. 1885.

possess reputation in this complaint are arsenic, sulphur, and the sodic sulphites, the alkalies, tar, phosphorus, and the sulphide of calcium.

The last-named is probably more highly esteemed by the larger number of practitioners than all other internal remedies, and is given in doses of one-fifth to one-tenth of a grain (0.0133–0.0066) every three or four hours in the day. In lithæmia, the acetate or citrate of potassium is given in large dilution; in gouty states, colchicum and the alkalies, including the sodic salicylate. No one of these articles, however, may be described as an efficient and certain remedy for the complaint; many cases will progress without hindrance from any or all of them.

Attempts in the direction of aborting a furuncle may occasionally be made by the topical application of the stronger alkalies (aqua ammoniæ) or acids; caustics or cautery; ice, or premature complete incision with the scalpel. These measures will occasionally succeed; more often they fail. Frequent renewal of hot poultices of powdered slippery elm or flaxseed, to which an opiate may be added for the relief of the acute pain, should be practised till suppuration is established, and exit given to the pus or core. For a brief time afterward, they may be continued. Subsequently the treatment is by carbolated lotions and simple ointments.

Prognosis.—The future of the patient affected with a prolonged furunculosis is that only of which there can be question. Eventually the worst cases are relieved when unaccompanied by systemic or visceral disorders, and where the circumstances of the sufferer permit him to pursue the most advantageous course (travel, diet, abstraction from business, etc.). The resulting cicatrices depend upon the severity of the process. Often they are small, and in the course of years scarcely distinguishable. In exceptional cases they are large, persistent, and disfiguring.

Anthrax.

Gr. *ἀνθραξ*, a live coal.

Anthrax is a circumscribed, cutaneous and subcutaneous abscess, usually larger than a furuncle, characterized by dense induration and sloughing, and terminating, in favorable cases, by the production of a persistent cicatrix.

The term anthrax is employed by several foreign authors to designate the disease known among the English as murrain, splenic fever, or malignant pustule, the *charbon* of the French. It is here employed solely in the description of the non-specific carbuncle. The malignant carbuncles due to the presence of bacteria will be described under the title, Malignant Pustule.

Symptoms.—Carbuncles are often preceded by malaise, chill, and pyrexia of severe grades. In cases where the anthrax is formidable and seated upon or near the head, alarming symptoms of prostration, stupor, somnolence, and even coma, may be noted. With and with-

out these concomitants, a dense, dull-red, indurated, and painful phlegmon soon appears, varying in size from a small hen's egg to an orange and even much larger, involving not only the skin, but the tissues beneath. Suppuration finally occurs; but the pus is not confined to a single sac. It undermines the integument, and often, through several apertures, leaks out indolently to the free surface. The fenestrated or cribriform appearance of the skin covering the carbuncle constitutes, in this stage, one of its most striking features. Through these apertures may be distinguished the whitish or yellowish pus-soaked sloughs, or portions of a single slough, which can be at times extracted through the orifice. Often the entire mass separates in a single slough, involving the skin and subcutaneous tissues, leaving a crateriform ulcer of formidable size, which, in favorable cases, proceeds to heal by granulation. The resulting cicatrix is at first of a deep violaceous tint, and later becomes blanched. It is indelible.

The fever which usually accompanies this process may be mild or severe, or, more commonly in dangerous cases, of a typhoid character. It results unquestionably from sepsis due to unliberated pus and necrotic tissue, and is naturally most grave in consequences where the patients are weakened by previous asthenic disorders. Under these unfavorable circumstances, the carbuncle may spread at the periphery, with islands of necrotic tissue and ill-conditioned pus, separated by bridges of empurpled, infiltrated, and yielding skin.

The peculiar lesions of this disease most often appear upon the back of the neck, the back of the trunk, and the lateral aspect of the hips and thighs, usually in single development, though occasionally two or even three carbuncles of small or medium size may co-exist. The reason for their appearance in the localities named is clear. It is here that the skin is most thick and resisting, and, as a consequence, purulent foci when formed are covered in by the most voluminous layers of the connective tissue of the corium.

Etiology.—Anthrax is produced by the obscure causes to which reference has already been made as probably effective in the production of boils. The two may coexist; or the one follow the other; and intermediate forms occur which might be assigned to either class. The disease is encountered more often in men than in women, and in later than in earlier life, simply because the tissues constituting its sites of preference offer in these individuals, and at these ages, a greater resistance to the exit of pus. The bacilli which may be recognized in many cases may sustain an etiological or purely accidental relation to the lesion.

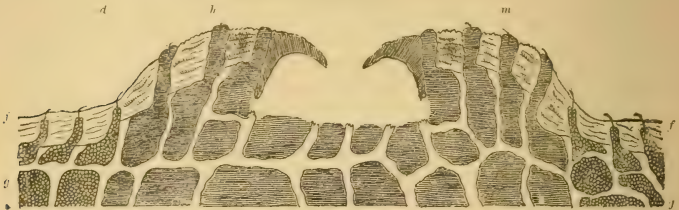
Pathology.—The pathological anatomy of carbuncle is well described by Warren,¹ whose observations conclusively show that the inflammatory process here is one with that seen in the simplest pustule. The peculiar symptoms of carbuncle are due solely to the formation of the phlegmon beneath the dense and extremely thick masses of fibrous tissue found in the back "for the protection of

¹ The Pathology of Carbuncle, or Anthrax, Cambridge, 1881, p. 15.

that comparatively defenceless portion of the body." The elements, multiplying with the intensity of the inflammatory process, first in the subcutaneous adipose tissue, pass upward along the fat columns described by Warren as *columnæ adiposæ*, crowd these, push along their horizontal clefts branching from either side, infiltrating the derma, pass along the edges of the hair-follicles, fill the papillæ till the latter "balloon" with pus, ooze to the surface through the cribriform apertures in the undermined epidermis, and soak the bundles of fibrous tissue, relatively intact, which constitute the undetached mass of sloughing tissue.

It cannot be doubted that the general symptoms in anthrax, pyæmic, septicæmic, sympathetic, are due solely to pus imprisonment.

FIG. 34.



Vertical section of anthrax. Dense network of fibrous bundles, with interspaces communicating and extending to the subcutaneous tissue. (After WARREN.)

FIG. 35.



Section of anthrax. Infiltrated papillæ are seen at *l*, distended in balloon-shaped figures, between which the rete is compressed; at *p* and *mp* columnæ adiposæ are seen; *f*, division of elements, the fibrous bundles resolving into protoplasm. (After WARREN.)

Diagnosis.—It follows from what has preceded that carbuncle and furuncle differ solely in consequence of the depth of the starting-point of the phlegmon, and the density and resisting power of overlying tissue. The former is therefore flatter, denser, less rapidly developed, larger, less tender, and more painful, opens by many rather than by one or two apertures, and is followed by larger sloughs, ulcers, and cicatrices, and occasionally by fatal results.

Treatment.—Crucial and other deep incisions in the local treatment of carbuncle are certainly inferior in results to the method advocated by Wood¹ and Talor,² which are employed in cases with complete success. A saturated solution of pure carbolic acid is injected through the several apertures in every direction into the sloughing tissues by the aid of an hypodermatic syringe. When the orifices are not sufficiently numerous, the point of the needle is thrust through the thinned integument at the summit of the swelling in several points. The pain is severe, but short-lived; the tissues are blanched, indurated, and destroyed; the slough in a few days is readily separated after division of its slender fibrous attachments; and the ulcer rapidly contracts with the sequel of a smaller scar. It is necessary to use pure acid in saturated solution to prevent absorption of the injected fluid and resulting toxic effects.

Relief is afforded in many cases by opiated hot cataplasms and fomentations, with the requisite skill in the surgical dressing of the parts by carbolated lotions, extraction of the slough wholly or in portions by the forceps, and the subsequent employment of simple or carbolated unguents during the reparative process. An excellent method of withdrawing the purulent and sloughing contents of the carbuncle is to apply over it, at the proper period, an exhausted receiver, such as a common cupping-glass.

In many cases the antiseptic treatment of a carbuncle furnishes decidedly the best results as regards the comfort of the patient and limitation of the disease. Here there is absolutely no surgical interference with the lesion, beyond the incisions made for the evacuation of pus. The violent squeezing and manipulation of the carbuncle are interdicted. It is freely powdered with iodoform, and on it is laid soft, felt cloth, thickly spread with any emollient and antiseptic salve. Bulkley³ advises the use of the ordinary zinc salve for this purpose. Boric acid in powder, or iodol, thickly dusted over the carbuncle and covered with antiseptic wool will also be found a useful dressing.

Internally calx sulphurata should be administered in full doses. It has an unquestionable effect in diminishing the pus-formation.

Other constitutional treatment is that demanded in the case of furunculosis, including the liberal employment of tonics, a generous diet, a strict observance of the rules of hygiene, and stimulants when indicated. Pyrexie, septicæmic, pyæmic, and adynamic states require the special management of such complications, including cold sponging of the surface in fever, and the use of quinine and stimulants, with artificially applied heat in the algid condition.

Prognosis.—A serious issue need be anticipated only when the complications described above are grave in character, or occur in asthenic constitutions.

PUSTULES FROM CADAVERIC INFECTION.—The lesions generally known as dissection-wounds usually occur upon the hands of those

¹ Toledo Medical and Surgical Journal, Dec. 1880.

² Austral. Medical Gazette, Dec. 1, 1881.

³ Journ. of the Amer. Med. Assoc., May 16, 1885.

exposed to the danger of post-mortem examinations and dissections. At the point of inoculation, which may be either the site of a former abrasion, rent, or the mouth of an open follicle, a painful vesico-pustule, papule, tubercle, wart, furuncle, or hæmorrhagic bulla rises rapidly from an angry and indurated base, with hyperæmic areola in dull red shades. Suppuration, crusting, or ulceration may follow, limited to the seat of the lesion; or lymphangitis in various grades with consequent pyæmic or septicæmic involvement of the system. Suppurative and non-suppurative axillary buboes are common. Gangrene and necrosis of the soft parts and bones, especially the phalanges, may ensue, as also a fatal result from the systemic disorders named. In a few cases a chronic marasmus is induced. Prophylaxis, by proper protection of the hands and the immediate cleansing and disinfection of any accidentally wounded point, is of the highest importance. The treatment is to be conducted in accordance with the principles already described.

There is reason to believe that accidents of this kind may be produced by absorption of the alkaloids engendered in the cadaver by the decomposition of proteid substances, called ptomaines. These were first isolated and named by the late Professor Selmi, of Bologna, subsequent investigation seeming to prove that in chemical constitution they do not differ from the alkaloids produced by albuminous decomposition in vegetables. Brieger has identified neuridine, cadaverine, putrescene, and saprine in the dead body, and, with these a peculiarly toxic alkaloid to which he has given the name mydaleïn. All these are capable, after ingestion or admission by other avenues to the circulation, of inducing salivation, vomiting, diarrhœa, dyspnoea, paralysis, and death. The lethal issue in the case of lesions of the character here designated, is probably due to the fact that, at the site of the pustule of irritation or traumatism, one or more of these toxic alkaloids has gained admission to the lymphatic circulation. For further reference to this subject, the reader may consult the chapter on *Verruca Necrogenica*.

PUSTULES AND OTHER LESIONS RESULTING FROM WOUNDS INFLICTED BY REPTILES AND INSECTS are often of an insignificant character. Such are the trivial results of the bites and stings of flies, fleas, mosquitoes, ants, bees, hornets, etc. At other times, however, serious and even fatal consequences have been recorded. The wounds produced by the tarantula and scorpion (which frequently lurk in the clusters of tropical fruits now imported to almost every part of this country), as also of the venomous reptiles, may prove to be grave. Urticarial, vesicular, pustular, papular, bullous, and petechial lesions may thus originate and be the cause of a more or less severe dermatitis with toxic symptoms. In the latter event, it is common in this country to administer as remedial agents, alcoholic stimulants as freely as they can be ingested.

DELHI BOIL, ALEPPO EVIL, AND BISKRA BOUTON.—These are chronic endemic disorders characterized, for the most part, by the

occurrence of painful nodosities upon the face, hands, and other portions of the body. The lesions are often multiple papules, which subsequently become purulent and ulcerate indolently; or become covered with scales. They are often grouped in patches and followed by cicatrices. The exact nature of the maladies thus named, is unknown. They are quite fully described by Fox, Farquhar, Pollack, Willemin, and other authors, as occurring in India, the region about the Euphrates and Tigris Rivers, and along the northern coast of Africa, especially Algeria and Morocco. The descriptions given of these diseases certainly suggest that, in some instances at least, several different disorders have been included under these titles, such as the lesions of lupus, syphilis, and the frequently formidable symptoms produced in the skin by the vegetable parasites in tropical countries. The author has personally journeyed from Arabia in the East, along the coast to six degrees below the line in South Africa, and thus enjoyed a fair opportunity of observing the symptoms of many of the endemic disorders of that region. In no single instance has the author been able to persuade himself that the numerous furuncular, papular, and pustular affections encountered, differed from the similar lesions observed in temperate climates, except in that they were greatly aggravated by filth, meagre diet, intense heat of climate, ignorant and vicious medication, and the syphilitic diathesis.

Laveran¹ has lately described afresh the Biskra bouton. It occurs not only in Biskra, but also in the adjoining oasis, and is plainly identical with the Aleppo boil. It shows itself as an endemic only in the months of September and October, and continues till December. No new cases appear in January and February. All ages, both sexes, the strong and weak, are liable to it. The eruption affects the face and extremities by preference, sometimes also the trunk. It ordinarily attacks the same person but once, yet may recur. So long as the disease prevails, the least excoriation has a tendency to become Biskra bouton. At first there is a reddish, painless elevation of the skin, the size of a pin's head; the centre of this soon dries, and a brownish crust forms, easily removable. Beneath this, there is a small round ulcer. The papules may occur in patches, bearing thick crusts which long resist. The crusts are remarkably dry. When the latter are removed and the ulcer left undressed, a new, less firm crust forms; when dressed, the crust-formation is prevented and an ulcer of an obstinate character remains, which in the leg is not unlike a varicose ulcer. If the original crusts be not disturbed, these eventually fall and leave no scar. Should, on the contrary, the crust be removed at the beginning of cicatrization, this is accomplished slowly, and a permanent scar remains. Lymphangitis, erysipelas, and phlebitis, occur as complications. There are no peculiarities in the crusts. Epidermic cells, pus corpuscles, and bacteria, are commonly recognized by the microscope. An expectant treatment is the best. Should the crusts be removed or fall off, it is advisable to powder the ulcer with henna, which favors the produc-

¹ *Annal. de Derm. et de Syph.*, 1881, t. i. p. 173.

tion of fresh crusts and cicatrization. As regards its pathogenesis, the author holds Weber's view, that the disease is contagious and inoculable, and perhaps auto-inoculable. The virus exists in the crusts, but its nature is not established. Carter's opinion as to its parasitic nature is not tenable.

Dr. Altounyan, of Turkey,¹ protests against the view, given above, entertained by Geber and others that the Aleppo button is a term applied indefinitely to various cutaneous disorders. In his view it is a specific disease beginning, independently of the hair-follicles, as a small acne-form papule, disappearing on pressure and pinkish in color. Afterward it grows deeper, larger, and harder, and becomes more adherent and more vascular. Still it is livid, sensitive, smooth, and boggy to the touch. Pus forms centrally and dries into grayish-brown crusts which are rupioid in character. Beneath is a spongy ulcer, with ragged margin, ovoid contour, and ichorous discharge. Healing is by the production of a permanent and deforming scar, the entire course of the disease lasting one year.

Dr. G. R. Eliott, of New York, who made a microscopical examination of some specimens furnished him by Altounyan, reports that the disease was limited to the epidermis and corium, and its area occupied by small round inflammatory or formative cells and epithelial elements. There was a distinct line of separation between the healthy and diseased tissue. No cryptogams or other micro-organisms were recognized. The hair-follicles and other glandular structures were intact.

Altounyan found the best treatment to be the painting of the button with the tincture of iodine; and that one attack furnished immunity against a second. He believes the disease to result from the bite or sting of an insect.

Phlegmona Diffusa.

Gr. *φλεγμονή*, an inflamed tumor.

Phlegmona Diffusa is a grave form of non-circumscribed inflammation of the skin, in which the integument becomes livid, hot, swollen, painful, and apt for necrosis, this process occurring in one or many places to a considerable depth, and accompanied by fever and systemic disturbance.

The word phlegmon is employed by most English and American writers to indicate a circumscribed inflammation of the skin, terminating naturally in suppuration, and, as to the tissues involved, larger than an ethymatous pustule, and yet not large enough to be termed an abscess. Circumscribed phlegmons are represented by most furuncles, and, at one stage certainly of their career, also by carbuncles.

In the disorder, however, under consideration, the symptoms, both local and general, are far more serious. The first evidence of trouble may be a severe chill, followed by high fever and deep-seated ham-

¹ Journ. of Cutan. and Ven. Dis., viii, No. 6. June, 1885.

mering pain, felt in the part which is the seat of the disease. This is soon recognized as an œdematous area, of dull red or livid hue, tensely infiltrated, of the familiar brawny type and indeterminate outline. All of these symptoms rapidly increase as resolution is very rarely attained, and are followed by suppuration at one or more points. In diffuse phlegmon, however, the brawny tenseness of the inflamed skin has been so great that vascular thrombosis occurs, and the circulation is greatly impeded, as a consequence, between the points where pus forms, or about a single point. The tissues then become more or less necrotic, both during and after the formation and evacuation of pus.

The fever meantime may abate or entirely remit, or, in grave cases, steadily persist. In the latter event, the subcutaneous tissue, fascia, periosteum, bones, joints, and ligaments may be involved. But in all favorable cases the systemic condition is greatly improved when pus is no longer deeply or extensively formed, and when the gangrenous shreds and sloughs are well loosened or entirely removed.

The "Acute Purulent Œdema" of English authors and the *Gangrène Foudroyante* of the French may be regarded as severe types of diffuse phlegmon. In most of such cases the patients die septicæmic before the complete evolution of the cutaneous inflammation has been reached. In others, the affected part, suddenly losing its tense brawny hardness, becomes emphysematous, or crepitates with bubbles of gas produced by decomposition. The patient may then become somnolent or delirious, or be the victim of an intercurrent and fatal involvement of the kidneys, lungs, liver, spleen, or bowels.

The treatment of diffuse phlegmon is largely surgical, and in this day simple. Incision, drainage, and disinfection are the three essential requirements. These thoroughly assured, the systemic treatment is by quinine, stimulants when indicated, and the accepted remedies for the typhoid condition generally, including rest in the recumbent posture and a proper supply of wholesome air and food. Amputation of limbs may be necessitated in order to save life.

The prognosis rests almost entirely upon the extent, diffusion, and severity of the local inflammation, and the systemic condition of the patient. In a previously healthy subject, with good hygienic environment and the absence of thrombosis, pyæmia, septicæmia, and erysipelas, the results will generally be favorable. With the reverse of these conditions, the outcome may be serious as regards the loss of a limb, deformity, or a fatal issue.

Pustula Maligna.

Malignant pustule is a grave carbuncular lesion occurring usually upon exposed portions of the body, which may result in gangrene, accompanied by a specific fever, and usually resulting from inoculation with a virus obtained from some of the lower animals.

This disease in man is fortunately rare of occurrence, and is usually derived from some animal affected with the specific malady variously

termed "Anthrax," "Charbon," "Splenic Fever," "Splenic Apoplexy," or "Texan Fever." The lesion under consideration is also termed Splenic Fever Carbuncle. After inoculation with the disease from any infected animal, the human subject may (*a*) perish from systemic poisoning wholly septicæmic in character with few external symptoms; or, (*b*) when life is sufficiently prolonged, suffer from visceral symptoms, and exhibit subcutaneous tumors; or (*c*) exhibit the symptoms of the disease now under consideration.

In from twelve to eighteen hours after inoculation, a painless macule is first manifested, usually upon the dorsum or other parts of the hands or face to which the virus has had access. This is followed by an inflammatory and pruritic papule, which is rapidly transformed into a flaccid vesicle filled with a bloody serum and surmounting a firm indurated "nucleus," or a larger blood-filled bleb reposing upon a somewhat painful, engorged, and often densely indurated base. One or more similar lesions may follow in the surrounding integument, coalescence of which produces a large, angry, œdematous, and often gangrenous ulcer. The involved skin may be as large as a small coin, or of the size of the palm of the hand. The lymphatic vessels and ganglia enlarge, and often suppurate; metastatic abscesses form; and the constitutional symptoms supervening are those described in connection with equinia.

If recovery ensues, the gangrenous mass is sloughed off as in favorable cases of carbuncle; if the result is to be fatal, the process is rapidly aggravated by œdematous infiltration extending to a wider area and by larger quantities of tissue falling into necrosis.

In some cases the accompanying fever is high, with marked delirium; in others, it is of a typhoid character. Death results from shock, septicæmia, or exhaustion, though in cases where the lesion is circumscribed and unattended by constitutional symptoms, recovery may ensue.¹

Etiology.—The disease is commonly induced by infection from one of the lower animals, usually horned cattle, who suffer from charbon or splenic fever, and are in relation to herders, ranchmen, etc. The susceptibility of the carnivora to the disease is very much less than that of the herbivora. It is claimed that not only direct inoculation may produce the disease, but that it may be extended by the medium of flies and other insects. More recently it is claimed that food, drink, and even inspired air may be the medium by which the disease is conveyed.

Pathology.—Since the first investigations reported by Davaine to the French Academy in 1864, Pasteur, Klebs, Koch, Carnevin, and others have fully demonstrated that splenic fever is solely due to the multiplication in the blood and tissues of a rod-shaped bacillus, the bacillus anthracis, which is always motionless. Under culture the bacilli may develop long filaments, many times larger than the

¹ A chromo-lithograph exhibiting the peculiar features of the malignant pustule in the neck, will be found in the British Med. Journ. of June 13, 1884, illustrating a paper by Mr. Morrant Baker.

original rods, with a distinct sheath about a protoplasmic cylinder, which after segmentation furnishes oval and shining spores. These have been cultivated again and again, with resulting germs that have produced the disease artificially in the lower animals.

The pathological anatomy of the malignant pustule is that of carbuncle with the added fact that specific bacilli and spores are abundantly present in the blood and débris of tissue.

In establishing a diagnosis, care must be taken to avoid one source of error. Malignant pustule in man is not of frequent occurrence in this country, but occasionally various cutaneous eruptions are induced upon the hands, after contact with animals or hides upon which chemical solutions have been applied for the destruction of lice. These solutions usually contain arsenic, corrosive sublimate, or other substances capable of exciting a localized dermatitis.

The treatment is to be conducted on the principles of general therapeutics. Popper,¹ an Hungarian physician with a large experience in malignant pustule, reports success by deep excision of the lesion, extending the operation to the subcutaneous connective tissue. This has always proved successful when practised before the occurrence of general symptoms.

A number of other authors have had similar successful results after excision. Pitts, for example (*Brit. Med. Journ.*, March 19, 1887), reports two successful excisions of malignant pustule in the case of brothers. Hebra was not in favor of the early cauterization of the malignant pustule, and it may be considered as a questionable method of procedure.

A grave case of malignant pustule is recorded,² in which recovery ensued after the hypodermatic injection of the tincture of iodine. Three syringefuls of the pure tincture were deposited beneath the skin at the periphery of the diseased surface, and lint soaked in the same was applied over the slough. Internally, fourteen drops of the tincture (1.) with three grains (0.26) of the iodide of potassium, were also administered. Normal cicatrization followed in this and six other cases recorded.

Crucial incisions with the free application afterward of pure carbolic acid have been followed by good results. Mr. Baker, of London, reports rapid and complete relief after excision, and the free use of iodoform. Internally, the hyposulphite of sodium and quinine are successfully employed. The febrile, typhoid, and adynamic features of the disease are to be treated in accordance with the recognized principles of general medicine.

FIG. 36.



Malignant pustule bacilli and pus corpuscles. About $\times 300$.

¹ *Ctbl. f. Chir.*, 1881, No. 33.

² *Arch. gén. de Méd.*, Feb. 1883.

Herpes.

Gr. ἔρπειν, to creep.

Herpes is an affection of the skin characterized by the occurrence of one or more vesicles filled with a clear serum, disposed in groups, limited to a certain region of the body, and pursuing a definite career within a relatively brief period of time.

The term herpes is unquestionably responsible for a great deal of the confusion which has existed with respect to contagious disease. By the ancients it was employed, as its etymology suggests, to designate a disease creeping or extending gradually over the surface or within the substance of the skin. By several more modern authors the term has been employed in a generic sense in a futile attempt to distinguish a series of so-called "herpetic diseases," and even herpetic diatheses from those of a different complexion.

The significance which attaches to the word in the minds of the dermatological authors of this day, is exceedingly simple, and is limited to the features conveyed in the definition given above. It will be seen that the description thus embodied is largely that of herpes zoster, an affection which is in this work considered separately.

Symptoms.—The disease is declared by the occurrence of millet-seed to coffee-bean sized vesicles, single or relatively few in number, and in the latter case grouped, occurring as epiphenomena of a general febrile process, or as symptoms of an idiopathic disease. The lesions are usually short-lived, surviving but for a few days, and are filled with a clear, serous fluid which may become lactescent. After accidental or spontaneous rupture, there is left a slightly tumid, superficial excoriation, which at times is characterized by a circumscribed hyperæmia, slight infiltration, or œdema of the base and periphery. The subjective sensations are not usually severe, varying between moderate pain, itching, and heat. There are occasionally precedent chill and pyrexia, but no persistent lesion-relics result from complete involution.

HERPES FACIALIS.—About the lips, mouth, and alæ of the nose, rarely upon any other portions of the face, lesions occur singly, or in a group, possessing the characters described above. Their frequency about the lips has determined the title **HERPES LABIALIS**, under which they are described by several authors. The tongue, buccal membrane, palate, and larynx may participate in the morbid process; and the lesions in such moist situations are represented by isolated or grouped, dark-grayish patches of epithelium, which are sensitive and exfoliate. The functions of the mouth in articulation and mastication are thus rendered painful. The disease is common in acute pneumonia, malarial and enteric fevers. In these cases, as Kaposi has

shown, the occurrence of the eruption by no means augurs favorably in every instance, as a fatal result may nevertheless follow.

Often the lesions coalesce, forming a pea-sized bleb in an irregular line of elevated epidermis, spreading along the vermilion border of the lip and distended with a clear serum. The burning and itching sensations which accompany the lesions are often marked and distressing. In the course of two or three days, thin crusts form whose exfoliation terminates the disorder.

The connection between labial herpes and rigors has long been recognized, though particular attention has been directed to this relation by Hutchinson and Symonds. Beside the trophic disturbances of this nature, traumatism, exposure to solar heat, unusual fatigue, a simple coryza, exposure to a cool draught of air, and temporary gastric disturbances may suffice to induce the disease. There are patients who can produce the lesions at will by tickling the lips with a feather. There is in some individuals an unquestionable susceptibility to the disease. The disorder is always short-lived though often recurrent; and the superficial crusts which terminate the process are never followed by scars.

HERPES PROGENITALIS.—This disorder, also termed *Herpes Præputialis*, is characterized by the appearance of one or a group of transitory vesicles occurring on the inner face of the prepuce, especially upon its upper limb, on the glans, the balano-præputial sulcus, and the adjacent integument; in women, on the hood of the clitoris, the labia minora, the inner face of the labia majora, and adjacent surfaces even as far removed as the buttocks.

There is usually precedent pruritus or a sensation of heat, followed by the appearance of one or several pin-head sized vesicles seated upon a tumid and hyperæmic base. Within the præputial sac the lesions may either rupture at an early moment, or assume the features described as presented upon the mucous membrane of the mouth. The resulting œdema of the prepuce is often displayed in an annular tumefaction encircling the glans, while the labia minora perceptibly project from the general vulvar plane. In these localities the floors of ruptured vesicles are particularly liable to be irritated (coitus, caustic, etc.), and then pus and even blood may be exuded with much angrier excoriation and resulting crusts of darker shade. In the course of a few days even these crusts fall, and the disease is at an end. Recurrence is common.

Often a first attack of herpes in the male results in an extraordinary sensitiveness of the balano-præputial membrane, which persists for more than a year. The patients are usually middle-aged men, married, and virgin as to venereal antecedents. The membrane is then tumid, tense, slightly glazed, and dark red to dark purple in hue. Upon any undue sliding of the prepuce over the glans, a very superficial fissure occurs, whence a drop of serum oozes. The membrane becomes so sensitive that the passage of the finger over it is resented

as though the conjunctiva had been touched. Unusual friction by the clothing or the use of a stimulating lotion, is followed by intense pain and aggravation of symptoms; and the price of coitus is a week's rest in bed.

Naturally the diagnosis of herpes progenitalis is between chaneroid and chancre. The latter will be manifested by its induration, its period of incubation, and its characteristic double inguinal adenopathy. The chaneroid, whether in pustular form or inoculated abrasion, is *ab origine* ulcerative in tendency, capable of auto-inoculation, and often accompanied by sympathetic, inflammatory, or virulent bubo of one side. Balanitis, with its puriform secretion and superficial patches of reddened epithelium, is readily distinguished by its symptoms, though the two disorders frequently coexist.

The practitioner should never forget that the patient who exhibits an herpes of the genital region to-day may have been inoculated at the site of these lesions which may to-morrow or later take on the chancreous modification. The rule to be followed, then, is very simple. No individual with a progenital herpes can be assured of immunity against syphilis, till the longest period of incubation of the syphilitic chancre has elapsed since the date of last suspected exposure.

Herpes progenitalis is almost universally the result of naturally or unnaturally induced sexual erethism. Its occurrence in an individual virgin as to such antecedents may be due to the causes efficient in the production of herpes facialis. Unna,¹ in an interesting paper on the subject, has conclusively shown that, though relatively rare in chaste women, it is of common occurrence in prostitutes.

Messrs. Diday and Doyon,² who have given special attention to the subject, believe that true herpes of the genital region is always of the recurrent type, and well marked by its special course, career, and consequences. All others of a false type are divided by them into [1] an irritative form, seen in women as the result of vaginal discharges, sexual irritation, etc.; [2] a pseudo-membranous or diphtheroid form, also occurring for the most part in women, vesicular and even bullous in its lesions, whose rupture is the signal for the pseudo-membranous transformation; [3] a neuralgic form, which is merely zoster of the genital region.

Treatment.—The milder forms of herpes occurring about the lips and genitalia require the simplest treatment. Sponging with pure water, as hot as can be comfortably tolerated, is best followed by local use of a weak lead lotion, rose ointment, or zinc salve. About the lips it is well to protect the lesions with flexile collodion or isinglass plaster. Occurring upon the genital region, the lesions are to be protected by the interposition of a pledget of lint or a borated or salicylated dusting powder. As a rule, ointments are unsuited for the moist mucous surface of the genitals, the odorous emanations

¹ Journ. of Cutan. and Ven. Dis., Aug. 1883.

² Les Herpès Génitaux, Paris, 1886.

from most diseases of such parts being retained disagreeably by all grease-containing compounds. Lotions answer a far better purpose, and these may be made stimulant with alcohol; astringent with tannin, the sulphate of zinc, or the sulphate of copper; painless with opium or cocaine; and antiseptic with carbolic acid or corrosive sublimate. Prophylaxis by the local use of aromatic wine, or tannin and brandy, with continence, is a matter of importance.

Herpes Iris.

The behavior of the lesions in herpes iris differs somewhat from that just described; and this has led several authors to consider the affection as a separate and distinct disease. As there is, however, some doubt respecting the question whether herpes iris should not be relegated to the domain of erythema multiforme, it is assigned a provisional position in this connection.

The symptoms at the onset are the occurrence of one or several vesicles or vesico-papules, which pursue their usual rapid career in two or three days. Upon the hyperæmic ring which surrounds these a second and even a third and fourth circle of similar lesions form, each pushing the areola further to the periphery of the patch. The older are in full retrogression while the newer are in process of evolution; and the red blush which surrounds the earlier is undergoing color-changes from vivid to paler hues, while the zone of the latest vesicles is assuming its intensest shade. The lesions are pin-head to pea-sized, rather persistent and firm; and terminate more often by resolution than by rupture and crusting. The concentric and parti-colored rings may make up a single patch an inch or more in diameter, or several such patches may form upon the surface of the integument. In the latter case the central disk of some of the patches will be seen to be made of confluent lesions. The eruption is most commonly situated upon the extremities, especially over the dorsum of the hands and feet, in which situation, especially when symmetrically developed, it is always, according to Kaposi, more nearly allied to erythema multiforme. It is, however, also rarely seen upon the face. The subjective sensations produced are usually trifling. Atypical forms occur where the lesions are imperfectly developed from papules, and also where, in consequence of an unusual exudation of serum, bullæ appear.

The points in which herpes iris most resembles erythema multiforme are: the variegation of the tints in the peripheral integument (whence the name, iris); its localization upon the extremities chiefly; its occasional symmetry; its frequency in young adults; and its tendency to occur in the spring and autumn. *Per contra*, herpes iris differs from other forms of herpes; in the absence of a precedent febrile state or neuralgic pain; in its avoidance of regions near the mucous outlets of the body (præputial orifice, vagina, mouth); and in the behavior of the vesicular lesions after attaining their full development.

The affection is evidently one upon the border-line between herpes and erythema multiforme; and might be properly considered under either title. Its existence is another evidence of the impossibility of drawing hard and fast lines between all the clinical symptoms presented by different diseases.

It can scarcely be mistaken for other affections, in consequence of the elegance with which its lesions are disposed. Pemphigus simplex and pemphigus foliaceus differ decidedly in their career, however much they may, at the outset of exceptional cases, present certain points of resemblance.

The affection tends to spontaneous recovery, and requires no treatment. A dusting powder may be applied over the surface, if need be, to protect the lesions from accidental rupture.

HERPES GESTATIONIS, or Pemphigus Hystericus, is a name which has been employed to designate erythematous, papular, vesicular, and bullous lesions, accompanied by marked pruritic and burning sensations, occurring usually upon the extremities, but also upon other parts of the body. The subjects are usually pregnant or hysterical women, who are said to exhibit recurrent attacks in successive conditions of pregnancy or neurotic disorders. Personal experience has led the author to accept fully the view of Duhring, that this disorder should be included under DERMATITIS HERPETIFORMIS.

Herpes Zoster.

Gr. *ζωστήρ*, a girdle; Shingles, Lat. *cingulum*, a girdle.

Herpes Zoster is an acute exudative affection of definite career, characterized by the occurrence of groups of firm and distended vesicles, preceded, accompanied, or succeeded by neuralgic sensations, usually monolateral in distribution, and followed in some cases by persistent cicatrices, the cutaneous symptoms being always limited to an area of the skin supplied by a twig of one or more of the cranial or spinal nerves.

Symptoms.—This disorder is also termed Shingles, Zona, and Zoster. The eruption is usually preceded, for a period lasting from a few hours to days and even weeks, by malaise or neuralgic sensations of moderate or severe intensity. These sensations are usually limited to the area of the integument subsequently or coincidentally displaying cutaneous lesions; but there are exceptions to this rule, as the pains are at times experienced elsewhere. Often, though limited to the region about to be attacked, they occur where pain is experienced in other neuralgias, at the points indicated by Romberg as corresponding to the regions where cutaneous branches are given off by the nerve trunks.

According to Fabre, the essential lesion, always present even when vesicles are not seen, is the first macular efflorescence of the disease. This appears in the form of vivid and brilliant-red erythematous macules, groups of which, from six to ten in number, appear in the

tract supplied by the affected nerve. The vesicles (which are generally regarded as more characteristic of the disease) appear afterward in from a few hours to a day or more, springing from the macules, and are accompanied by a sensation of heat. These typically perfect, isolated vesicles vary in size, from a rape-seed to a coffee-bean. They appear in groups corresponding to the groups of the macules, from eight to a dozen in a single cluster, and appear successively, the individual members of each attaining maturity simultaneously in about one week, while the succession of others may prolong the period of efflorescence to an entire month.

The lesions, when fully developed, exchange their early limpid contents for those of a lactescent or puriform character. They project well from the widely hyperæmic base from which they spring; are tense from complete distention; and have no tendency to spontaneous rupture, so firm is their roof-wall. When abundant, they may coalesce. Involution is accomplished by desiccation, and the formation of yellowish-brown crusts, whose fall is succeeded in certain cases by indelible scars.

Several variations from the type thus described require notice. The vesicles may be few and typical; numerous, abortive, and transitory; or differ in type as they may be transformed into veritable pustules or bullæ, or become filled with blood from capillary hæmorrhage. In the latter event there is still further departure from type in their tendency to spontaneous rupture and subsequent ulceration. According to Kaposi, it is in such cases only that cicatrices form; but this statement, in view of many clinical observations, must be accepted with reserve.

Authors have established a number of clinical varieties of the disease merely differing as to symptoms, such as acute febrile, apyretic, subacute, and even chronic and recurring forms. A bluish appearance of the eruption in some parts has suggested the name "black herpes;" blood in the vesicles, a hæmorrhagic form; and the occurrence of gangrenè has added an additional distinguishing term.

The anomalies of nervous significance are: extraordinary persistence of neuralgia after the involution of the cutaneous lesions; neuralgia of an intense and intolerable severity at any period of the disease; painful anæsthesia of the skin; paretic and paralytic phenomena with resulting muscular atrophy; and, in zoster of the head, dehiscence of teeth and hair.

The vesicles of herpes zoster are always produced in the areas of integument supplied by sensory nerves proceeding from the cerebro-spinal tract, a circumstance which explains their usual imitation to a single lateral half of the body. This limitation is rarely observed exactly at the median vertical line of the body, as a few lesions can usually be seen surpassing this boundary. The terms *zoster capitis*, *zoster brachialis*, *zoster occipito-cervicalis*, etc., are used to distinguish the special regions involved in the disease.

The fact that the majority of all cases are due to disease of the ganglionic nervous system and not to disease of the spinal cord,

explains the more frequent occurrence of zoster in the upper portion of the body.

Individuals are commonly subject to but one attack of herpes zoster in a lifetime, though, as usual for all general laws, there are the few exceptions which prove the rule. The same may be said of double attacks, those involving simultaneously the two lateral halves of the body, instances of which are occasionally recorded. These may be complete and symmetrical, or multiple and not symmetrical; or bifid, when there is simultaneous involvement of several branches of one nerve or of several nerves.

Bärensprung recognized the nine varieties of this disease named below, the difference in each having a purely local significance.

ZOSTER CAPILLITII depends upon involvement of the second branch of the fifth pair of nerves, and its lesions occupy the anterior and posterior portions of the scalp.

ZOSTER FRONTALIS occurs in the area supplied by the supra-orbital nerve, which springs from the first branch of the trigeminus. Its lesions extend from the upper eyelid to the vertex, and are spread in a fan-shaped figure over one-half of the brow, forehead, and scalp.

ZOSTER OPHTHALMICUS may be a severe and dangerous manifestation of the disease, being often complicated by agonizing neuralgia, formidable involvement of all parts of the eye even resulting in panophthalmia, ulcerative keratitis, pyæmia, meningitis, and death. Typical cases of zoster of this region may not, however, exhibit a single outward symptom of the disease.

ZOSTER FACIALIS depends upon involvement of the sensory nerve-fibres of the trigeminus distributed to the face, its lesions being displayed over one cheek, the side of the nose, the half of the lip, or of the chin. The facial and seventh nerves may be chiefly affected. Care must be taken in cases of this variety not to confound the disease upon the nose with acne, or painful tertiary syphilitic lesions, errors which have occurred. When the lower jaw is involved, there may be severe toothache, dysphagia, and fall of the teeth with great resulting deformity.

ZOSTER NUCLE SEU COLLARIS occupies the region extending forward from the cervical vertebræ to the clavicle, or upward toward the occipital region and the auricle.

ZOSTER BRACHIALIS occupies the region from the last cervical and first dorsal vertebræ over the supra-spinous scapular region and the contiguous portion of the upper arm. Rarely, even the skin of the fingers, and that over the first and second ribs is involved. It is a common and usually mild form of the disease, and characterized by a peculiar isolation of the vesicular groups. It occurs also with lesions of exclusively brachial distribution.

ZOSTER PECTORALIS is the most frequent form of the disease, from which its common name "shingles" originated. The eruption occurs below the first dorsal, covering the skin of the thorax as far as the lumbar vertebræ, extending from the spinal column behind to the sternal region in front. Two, three, or more of the intercostal nerves in this region are commonly involved, and the neuralgia resulting has been frequently mistaken for the pain of a pleurisy. Children are more apt to display this than any other variety of zoster.

ZOSTER ABDOMINALIS.—The area here involved extends from the lumbar vertebræ to the median line of the abdomen. It is usually much less pronounced in its features, and the exanthem less abundant than in the variety of the disease last described. When constipation exists, defecation may be attended with considerable pain.

ZOSTER FEMORALIS covers the buttocks and sacrum, and extends along the thigh, sweeping from behind forward and from above downward as far as the popliteal space; in some cases involving the leg and foot. The penis, scrotum, labia, vestibulum vaginæ, and anus may then exhibit unilaterally arranged vesicles.

The scars left by zoster are characteristic. Not only are they limited to the seat of the original disease, but they have a peculiar indented look, as if made by a nail-sett and hammer. They are particularly angular in outline, and do not exhibit the dead-white color of many cicatrices.

Etiology.—Herpes zoster occurs in both sexes, and in the young as well as the old, though it is rarely seen among infants. It seems to be somewhat under the influence of the seasons, as cold and damp weather serves to increase its frequency in those susceptible to it. A large list of other depressing agencies are named as effective in its production, such as: certain poisons, carbonic acid gas, belladonna and atropine (Mackintosh), arsenic (Baker, Dyce Duckworth, Hutchinson); pyæmia, carcinoma, fever (Gerhardt), pulmonary inflammations (including phthisis), septicæmia, hæmorrhages, traumatism, and malaria. Inasmuch as no one of these causes can be cited as certainly effective in all cases, it can merely be said that any influence sufficient to induce inflammation of a sensory nerve or its ganglion may be followed by the objective signs of the disease.

Pathology.—The researches of Bärensprung, Rayer, Wagner, Charcot, Kaposi, and others have demonstrated with sufficient clearness that in zoster there is always, at some point in the corresponding nervous tract (cerebral or spinal centres, ganglia, or the nerves themselves), pathological changes. These are: enlargements, hæmorrhagic effusion, separation, softening, or destruction of the nervous bundles, with hyperæmia, infiltration, and multiplication of the elements which surround the latter.

Sometimes the ganglia and nerves are both reddened and swollen at the site of the inflammatory affection; at other times the ganglion

alone is large and soft, or fatty from metamorphosis of its cells. According to Curshmann and Eisenlohr, the process may begin in the bloodvessels of the nerve-sheath, as well as the peri-neural connective tissue, the nerve substance being quite intact. This is termed acute nodose peri-neuritis, as small nodules were recognized by them in one case along the cutaneous branches of the axillary nerve. Lassar,¹ in a post-mortem examination of three cases, found the nerves thin, flattened, and of a transparent reddish-gray color contrasting with the normal white. There had been desquamation to the extent of replacing the normal structure with connective-tissue elements. Similar changes were recognized in ganglion cells and fibres.

FIG. 37.



Longitudinal section of the third spinal ganglion of the right lumbar region from a case of lumbosacral zoster. *a, a*, ganglion, the black points correspond with pigmented ganglion cells, the dark lines to engorged vessels; *a, b, c, d, e*, fatty tissue surrounding the ganglion; *b, b*, nerve filament divided longitudinally at the points of entrance and exit; at *c, e*, divided perpendicularly. (After KAPOSI.)

According to Biesiadecki and Haight, the cutaneous lesions originate in the deeper portions of the rete, precisely as in other vesicular diseases. The exudate from the hyperæmic corium, especially its papillary layer, presses upward into the rete, the epithelia of which are thus separated and vertically elongated. The serous exudation finally reaches a point where the horny layer is forcibly raised from its bed to form the roof of the vesicle. The mechanical destruction of the papillary layer of the corium by the hæmorrhagic or purulent contents of the lesions results in a solution of continuity, which is healed only by granulation and the necessary formation of a cicatrix.

Robinson, also, studying the same phenomena in the skin, finds the epithelia lengthening into bands by tension, the lacunæ between them distended with serum and a few round cells. Often the vesicles form about the hair-sacs. As the exudation increases, the rete cells

¹ Ctblt. f. d. Med. Wissensch., Dec. 1883.

are progressively separated, and finally discovered free in the exuded fluid, though some, in changed form but still connected, may be found in the upper part of the vesicle. Except at the margin, the mucous and horny layers are separated by the exudation. At first many-chambered, the vesicle represents finally a single chamber filled with serum containing rete-cells and a few pus-cells, the latter increasing in number as the vesicle changes its type. Its base at first rests upon the lower portion of the mucous layer; later, upon the corium itself where all signs of papillæ are absent. In the vicinity of the vesicle the papillæ and corium are infiltrated, and the vessels dilated, this peripheral change not extending deeply into the corium. Beyond this area, however, which is infiltrated in a columnar-shaped region, usually about a hair-follicle deep in the subcutaneous tissue, Robinson has recognized a peri-neuritis characterized by a round-celled infiltration within and around the neurilemma.

Diagnosis.—The vesicles of herpes zoster are not rarely confounded with those of eczema. But the distinction between the two is always very readily established. In eczema there is itching but no neuralgia; vesicles which tend to rupture spontaneously, and never persist as in zoster; the eczematous lesions are also smaller, more acuminated, and rarely distinctly limited to the lateral half of the body. Herpes simplex is frequently recurrent, herpes zoster almost never; herpes simplex is exceedingly liable to spread around the mucous outlets of the body, and on either side of the latter, while zoster only reaches such regions after extension from other parts, and is then almost invariably monolateral. Its lesions are, moreover, never grouped in the concentric circles of herpes iris.

Treatment.—The indications to be met in the local treatment of herpes zoster are the protection of the vesicles from rupture, and the relief of pain. These ends are best accomplished by thickly dusting the entire surface affected, with an opiated powder, such as Anderson's powder, with the sulphate of morphia, two grains (0.133) to the ounce (32.); lycopodium with powdered opium, etc. Rupture of the lesions should never be practised. Over the whole should be gently laid a sheet of soft lint or antiseptic cotton, its meshes also filled with the powder, and a bandage, when practicable, smoothly bound over the whole. In the milder cases, nothing more than this is needed from first to last. In others, where the lesions have ruptured and their bases undergone erosive or ulcerative changes, the oleated lime-water with zinc oxide, belladonna and opium or morphia, should be applied and covered with the Lister protective. Carbolated and anodyne ointments may also be used, especially toward the latter part of the history of the case.

Lotions may be employed of lead-water and laudanum, or the "lead and opium wash." Van Harlingen recommends half an ounce (16.) each of the precipitated zinc carbonate, powdered zinc oxide, powdered starch, and glycerine, shaken up in half a pint (256.) of water.

Duhring speaks well of collodion with morphia, in the strength of ten grains (0.666) to the ounce (32.). Kaposi warns against the use

of the diachylon ointment. Generally, it may be said that ointments should be the last resort; but those containing from ten to twenty grains (0.66–1.33) of the aqueous extract of opium or belladonna to the ounce (32.) will at times give relief from pain. The oleate of cocaine and menthol have been used locally with great advantage in meeting the same indication.

No remedy, for internal use, is known to have the power of aborting or shortening an attack. Quinine is certainly indicated and does no harm; but quinine and strychnia alike in full doses have proved quite inefficacious. Other remedies employed are the phosphide of zinc in one-third of a grain (0.022) doses, repeated every three hours, and, if indicated, in combination with one-sixth (0.011) of a grain of the extract of *nux vomica*; arsenic (Kaposi); and the tonics in general. Anodynes, orally or by hypodermatic injection, are often indispensable. Inasmuch as many patients consider the attack a trivial matter, it is of some consequence that they be warned of the possibilities of the future and be confined to an apartment of equable temperature where they are not exposed to atmospheric changes. This is of special importance in all the zoster of the face. A skilled oculist should be consulted in all cases involving the eye.

Prognosis.—Zoster usually runs a benign course, but it should never be forgotten by the practitioner that the prognosis may be in the highest degree grave. Many severe cases have occurred, where the patients, after years of intense suffering, have resumed the occupations of life, physical wrecks of their former selves, their faces indented with profound scars, and the vision of one eye impaired or utterly ruined. Rarely the termination is fatal.

Dermatitis Herpetiformis.

Dermatitis Herpetiformis is a rare but well defined febrile disorder, characterized by the appearance upon the skin, of multiform lesions, differing in different cases, macular, papular, vesicular, pustular, or bullous in type, attended by subjective sensations of itching and burning, the disease at times being grave in character and fatal in termination.

Dermatitis Herpetiformis should be named Dermatitis Multiformis, as the latter term is more descriptive of its phenomena. It is a malady which, in one form or another and under different titles, has long been recognized and described. The credit, however, of clearly establishing its identity, and of recognizing one process as differently expressed in the several observations of others, is largely due to Dr. L. A. Duhring, of Philadelphia.¹

It should be noted, at the outset of the study of this malady, that, its identity as a special pathological process having been only

¹ Dermatitis Herpetiformis; its relation to so-called Impetigo Herpetiformis. *Amer. Journ. of the Med. Sci.*, October, 1884.

Dermatitis Herpetiformis. Case of, caused by nervous shock, etc. *Ibid.*, January, 1885.
Case of Dermatitis Herpetiformis, illustrating the pustular variety of the disease. *Journ. of Cutan. and Ven. Dis.*, vol. i., No. 8.

Case of Dermatitis Herpetiformis with peculiar gelatinous lesions. *The Med. News*, March 7, 1885.
Notes of a Case of Dermatitis Herpetiformis, etc. *N. Y. Med. Journ.*, November, 1884.

A Case of Dermatitis Herpetiformis (Bullous) *N. Y. Med. Journ.*, July, 1884.

lately established, much investigation is yet required before settling definitely many of the interesting questions it presents for consideration. Duhring regards its vesicular and bullous forms as identical with "herpes circinatus bullosus" (E. Wilson); "pemphigus pruriginex" (Hardy); "herpes gestationis" (Milton, Bulkley, and others); "pemphigus" (Klein); "pemphigus circinatus" (Rayer); "herpes phlyctænodes" (Gibert); "pemphigus aigu pruriginosus" (Chausit); "herpes iris" (Järish); "fatal pemphigus-like dermatitis" (Mayer); "peculiar skin eruption recurring during pregnancy" (Oswald); "bullous eruption of a peculiar character" (Leigh); "pemphigus composé" (Devergie); and "hydroa" (Jones, Bulkley, and others).

Symptoms.—The disease is usually announced by malaise, sensations of chilliness, decided rigors or alternations of cold and hot sensations, with systemic disturbances. The skin usually is then the seat of pruritic or burning sensations followed in the course of from twelve hours to two days by the appearance of the exanthem. This may be macular, papular, tubercular, vesicular, pustular, or bullous, in type; combinations of these lesions recurring in every variation. The lesions may be cutaneous, muco-cutaneous, or mucous in situation.

The macular form of eruption appears in small-coin to palm-sized patches, irregularly rounded, coalescing, well or ill-defined as to outline, and slightly raised, suggesting the lesions of erythema multiforme or urticaria. Imperfectly defined maculo-papules, papules, and papulo-tuberculous lesions, varying in shape, size, and firmness may also spring from or be intermingled with the reddish maculations described above.

In typical development the disease, however, presents cutaneous symptoms of herpetic type. Flat, slightly elevated, hard, angular, irregularly outlined vesicles may appear, pin-head to bean-sized, tensely distended with their contents. They may be pale-yellow or darker in color, and with or without areolæ. When bullæ form, they may be sparse or plentiful, and bean- to egg-sized, with cloudy, lactescent, hæmorrhagic or purulent contents. Pustules, when present, are single or clustered, pin-head to bean-sized lesions, flat, and surrounded by a livid areola. When evolution is complete, segments of rings, or distinct rings of new punctate or large pustules surround those first formed, which in less than a week rupture and become covered with a crust, the latter being flat, adherent, and yellowish, greenish, brownish, or blackish in color. When there is coalescence, a large coin-sized pustule and crust may result, and even large patches of such coalesced lesions. The lesions may number from a score or fewer to hundreds.

The imprint of the cutaneous symptoms is multiformity and recurrence. Vesicles, pustules, and bullæ, without order or regularity of evolution or recurrence, appear at one and the same time, in rapid or slow succession, and without fixed intervals of appearance for months at a time. Generally, however, a prevalence of one special type of lesions may be noted during a single period of outbreak or recurrence. This prevalence is in the direction generally

of lesions of an herpetic type, viz., the vesicular and the bullous, in variously sized patches with a tendency to coalesce.

As a result of the conditions described above, a peripheral new formation of lesions tends to produce marginate patches where grouping occurs, the groups, however, being interspersed with diffusely disseminated lesions of various types. The irregular, angular, or stellate forms of the lesions containing fluid, are highly suggestive. Pigmentation and infiltration of the skin are commonly noticed. The subjective sensations of burning, increase and diminish as cutaneous lesions are multiplying or disappearing. The pruritus is in some cases more severe than in eczema, and the traumatism of scratching add greatly to the multiform features of the disease.

The disease lasts for months and years. Duhring reports some cases lasting for five to fifteen years, with periods of relative or entire immunity.

In one of Duhring's cases there were thumb-nail sized, raised but flat, golden-yellow colored lesions, of very firm consistency, containing a similarly colored, thick, consistent, gelatinous pulp. The author states that he has observed them before in several cases of this same disease.

When the oral cavity is invaded, pustules and bullæ appear upon the mucous surface which, being macerated and sodden, rupture, leaving raw erosions and unhealthy looking, even sloughing patches of mucous membrane. Crusts form about the nares and lips, and the stench of the patient becomes intolerable. In the same way the vulva, anus, and prepuce may be surrounded by vesicular and bullous lesions which form also on the mucous surfaces adjacent and pursue a course similar to that recognized in the mouth.

In grave cases, as the skin symptoms exhibit a marked aggravation, the systemic condition changes for the worse. After a low fever alternating with chills and accompanied by progressive cachexia and emaciation, an intermittent diarrhœa or pneumonia may close the scene. The repulsive appearance of the patient at the last is, in severe cases, as formidable as in the fatal issues of confluent variola or severe pityriasis rubra.

The etiology, pathology, and proper mode of treatment of this disease are not yet fully understood. In some cases disorders of the nervous system must be admitted as efficient in its production. Duhring reports a typical case following nervous shock. One of my patients had lost a number of children by accident. The disease occurs in early and middle adult life in both sexes, though in women decidedly oftener than in men; and, among the former, preferably among those in the puerperal and pregnant states. Unquestionably the phenomena of the disease in the later stage of fatal cases are septicæmic in origin.

Internal treatment in general has been directed to meet the indications presented. Thus, quinine, the mineral acids, ergot, saline laxatives, iodide and bromide of potassium, arsenic, and chloral,

have all been administered without appreciable effect upon the disease. Locally, carbolic acid, tar lotions, the unguentum diachyli albi of Hebra, mercurial and zinc salves have all been employed. One of Duhring's patients experienced great relief from the use of a sulphur ointment. Two of my patients were treated with very great comfort to the end in the continuous warm-water bath.

The prognosis is always doubtful and generally grave. It is not certain that the disease is ever completely relieved. A male patient, seen by me in consultation and then presenting the typical features of the disease, was reported well after one year.

Psoriasis.

Gr. *ψωρά*, the itch.

Psoriasis is a cutaneous disease, acute, or, more usually, chronic in course, characterized by masses of whitish, lustrous, and adherent scales, in pin-head sized agglomerations upon the surface of the skin, or in larger disks resting upon circumscribed, usually circular and reddened patches of epidermis, which are readily made to bleed.

Symptoms.—In Psoriasis, also termed Lepra, Alphos, and Psora, the primary lesion is a punctiform macule of reddish-brown tint, always, at the earliest moment of observation, covered with a delicate, whitish, epidermic scale. When this is removed even by gentle scraping, one or more minute droplets of blood exude from the points beneath which lie the vascular papillæ of the corium. When several or many such small points are visible upon the surface, the disease is called PSORIASIS PUNCTATA.

Should the disease progress to fuller development, patches of larger size form, always with a definite contour, very slightly elevated above the general level of the integument, and covered with whitish, mother-of-pearl-colored scales in abundance. When these are about the size of drops of water, the disease is termed PSORIASIS GUTTATA.

In yet more advanced conditions of the disease other names are employed, all from the external configuration of the patches, none having any pathological significance. Thus PSORIASIS NUMMULARIS is characterized by coin-sized patches; PSORIASIS CIRCINATA or ORBICULARIS, by patches where the disease is actively exhibited at the periphery of a circle, in the centre of which the scales have disappeared; PSORIASIS GYRATA and FIGURATA, by coalescence and extension of several patches, forming thus fantastic figures covered with grayish-white, imbricated scales; and PSORIASIS DIFFUSA, by much more extended and uniform involvement of the skin in large areas.

The greatest variation is exhibited in the progress of the disease, and to this point special attention should be directed. Thus, in a single individual the eruption may appear upon one or more regions of the body in the form of the punctate lesions described above, and thereafter regularly progress through the degrees suggested by the

list of names given above, till the entire surface of the body is completely covered from the crown of the head to the sole of the feet. This is fortunately rare. More often the eruption tends to remain stationary when one or another of the less extensively developed phases of the disease has been displayed. Thus the patches may be at no time larger than a silver quarter of a dollar, and though very numerous, fail for years to extend beyond such a limit. They may even persist for a longer period in even smaller dimensions, or, what is perhaps more common, occur in guttate forms upon the chest, and in patches as large as the palm over the knee or sacrum.

The sites of preference of the disease are over the extensor surfaces of the extremities, especially about the elbow and knee, where it is decidedly most common. After these locations should be named in order, the region of the sacrum (where often the largest patch upon the body can be discovered), the upper surface of the chest, the scalp, the face, the belly, and the genitals; more rarely the hands and feet.

The disease is essentially chronic in its course, is never contagious, and the efflorescence does not usually awaken any subjective sensation. Its features are so pronounced in typical cases that its recognition is facile, after appreciating the number and distribution of the patches, their clean-cut outline, the unaltered integument between, the lustrous and shining scales, and the red border of the skin which may crop out from beneath the squamous thatch above, or be completely hidden by the latter. Rarely a single isolated patch betrays the existence of the disorder.

When the disease is acutely spreading over the surface it has occasionally a different expression. This is often seen in young adults. The patches are perhaps as large as the section of a hen's egg; dark or lurid-red over the whole; covered with a more uniformly constituted, thin, squamous film, or sheet of semi-transparent delicate membrane, through which the red glare of the patch beneath is visible. This condition may also be seen in young persons to whom arsenic has been administered for the relief of the disease, with the production of irritative effects.

In its indolent moods, the color of the patch varies somewhat with the hue of the patient's complexion. Blonde women with flaxen hair and clear tint of the integument, often exhibit singularly waxy-whitish patches, decidedly differing in color from those occurring upon the muddy and greasy integument of certain dark-skinned men.

The scales are usually abundant, and may adhere with considerable firmness to the patch, or, more frequently, be shed freely from the surface, in pronounced cases powdering the clothing of the patient or the sheets of the bed upon which he reposes at night.

There is never at any time in the course of the disease, the appearance of other lesions or their sequelæ, such as vesicles, pustules, crusts, papules, tubercles, ulcers, or any discharge-feature. The eruption is dry from first to last. Exception only may be made in the case of patches occurring where motion of the skin produces fissure, an accidental and by no means characteristic complication. The same may

be said of certain acute symptoms, especially developed in young and tender skins, where considerable redness, occasionally with an erythematous halo, appears in and about individual patches, with the production of itching, heat, burning, pain, or other disagreeable sensations.

The involution of the disease is evident in a gradual cessation of the scale-formation and the exhibition of a normal epidermis which gradually spreads from the centre, or is at once perceptible over the entire surface of the patches. No cicatrization results.

Upon the scalp, plaques of well-defined contour, covered with thick whitish scales, may mat the hairs together, but alopecia almost never results. The dry condition of these scales contrasts with the greasiness of the crusts formed in seborrhœa of the scalp. Often a fillet or band of diseased tissue, one or more inches in width, projects beyond the border-line of the scalp and forehead. When the vertex is bald from physiological loss of hair, the patch of psoriasis usually lingers near the fringe of the hairs left at the sides of the head projecting thence to the regions of baldness. On the face as well as over the genitals, the lesions are usually both indistinct and small-sized, displayed, as regards the former locality, over the cheeks, chin, and nose, avoiding the parts near the mucous orifices. When there is much vascular congestion, especially of the passive kind, the patches assume a violaceous or purplish tint. All forms of lesions are seen upon the trunk, especially the dorsum and near the sacrum; the patches, in well-marked cases, encircling the body in ill-defined parallels reaching from the spine forward. The hands, feet, fingers, and toes are not often involved, and the palms and soles only so rarely as to throw doubt upon a diagnosis based upon the existence of the disease solely in these regions. In severe cases, the nails are secondarily involved, being thickened, eroded in points, irregularly laminated, ridged, and becoming brittle and yellowish-white or dirty-whitish in color.

The amount of scaling varies greatly in different persons and in the same individual; sometimes the scales are abundant and thickly heaped up over even small areas; sometimes they are sparse over large areas. In acute febrile and other intercurrent diseases, the disorder may fade or disappear. Where the epidermis is thin, the scaling is less; therefore, in youth, over flexor surfaces, near the mucous orifices, and on the back of the hands, the scaling is less than in advanced years, over extensor surfaces, in regions remote from the mucous orifices, and on the palms and soles. The disease may be for years limited to two or three continuously existing patches, or, what is far more common, recur at irregular intervals and under varying circumstances. As a rule, it is worse in winter and in cold climates, though patients may demonstrate the reverse of this rule.

The scales may display instead of a lustrous white, a deep yellowish shade, and instead of being imbricated, form a thin continuous sheet of exfoliated epidermis. When the disease is disappearing, the scales fall, leaving a pigmented or slightly discolored patch of integument.

A rare ultimate termination of the disease is the formation of verrucous growths in the psoriatic patches, which later become epitheliomatous.¹ At times the eruption is the source of excessive annoyance, being the seat of intense pruritic and burning sensations of a persistent type.

There can be no question that intermediate forms between eczema and psoriasis occur, in which it is difficult to determine whether the two disorders coexist, or the one has assumed the features of the other. In these cases, there is itching and infiltration of the skin, with vesicular and other lesions foreign to psoriasis, and a catarrhal discharge.

Psoriasis is not known to affect the mucous surfaces. The lesions of so-called "psoriasis lingue," are those of "leucoplakia buccalis," of "smokers' patches," of syphilitic disease of the mouth, or flat epitheliomata.

Etiology.—The causes of psoriasis are not known. As no external or internal factors can be demonstrated to be effective in its production, it is safest to conclude that these unrecognized sources of the affection are limited to the skin itself. The disease is neither contagious, hereditary, nor limited to either sex, occupation, or social condition. It bears no relation whatever to syphilis, eczema, gout, rheumatism, struma, or dyspepsia. It appears in the feeble and delicate as in the most superb specimens of manly vigor and womanly beauty. Though not occurring in infancy, it yet usually first appears in early life. Kaposi reports a single case in which the eruption appeared in the eighth month, and Eliot, a case of first appearance at the eighteenth month of life. Under these circumstances, the question arises: Is this affection of the integument, when uncomplicated by the disagreeable symptoms named above, a disease or a deformity? Certainly in a very large number of individuals, displaying through life unchanging patches where the characteristic symptoms are the same year after year, the ailment would seem to be more properly classed with the deformities than with the diseases of the skin. In point of frequency, the eruption ranks next after eczema.

Believers in the possibility of the transmission of the disease by inheritance are numerous, and some of them careful observers. Robinson goes so far as to say, that in the "majority" of all cases there is an inherited predisposition to the disease. Others conclude it to be an inherited or transmitted form of syphilis, struma, tuberculosis, rheumatism, or gout. Weyl thinks that inheritance may possibly be the sole cause. Bazin admits the existence of both an herpetic and an arthritic psoriasis.

Bearing in mind the relative frequency of psoriasis on the one hand, and on the other the strict tests which should be applied in order to prove that a disease is actually transmitted by heredity, we find that the doctrine of heredity in psoriasis fails of establishment. It is putting a low estimate on the actual figures to state positively

¹ See Dr. J. C. White's paper, American Journal of the Medical Sciences, 1885.

that there are more than one thousand psoriatic patients in this country, no one of whose ancestors, so far as known, ever had psoriasis, syphilis, or rheumatism. They furnish too large a body of evidence to be either ignored or set aside with a word. Thousands of their children are living to-day free for years from any evidences of disease. They, too, call for further proof on this point.

It has long been known that in psoriatic subjects lesions may be artificially developed in the lines of mechanical irritation. In this way, figures in the shape of anchors, crosses, hearts, etc., have been produced on the skin of psoriatic patients, one of which has been ingeniously photographed by Dr. Fox, of New York.¹

The disease is rather more common in male than in female patients, and appears to be rare in the negro races. According to Greenough's statistics, it represents about two and a half per cent. of all cases of cutaneous disease. It has followed vaccination, scarlet fever, and other diseases.

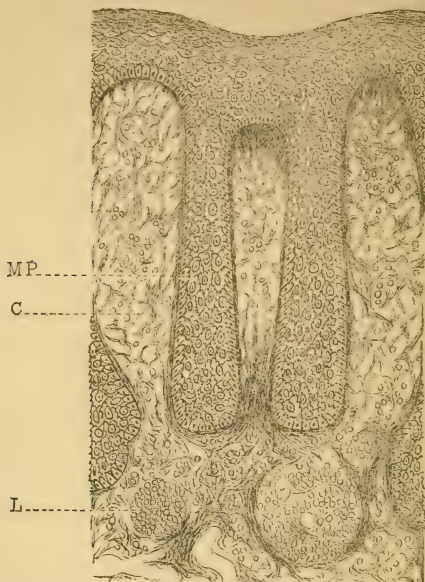
Dr. Gowers alone reports the artificial production of psoriasis by the internal administration of the baborate of sodium. Allusion has been heretofore made to this circumstance in the chapter on dermatitis medicamentosa (q. v.). Further evidence would be required to establish the fact that these results differed to any appreciable extent from those recognized in any squamous dermatitis produced by an ingested drug.

Pathology.—The observations of Wertheim, Neumann, Auspitz, Kaposi, and Robinson, of New York, are substantially in accord respecting the general character of the changes occurring in the course of the disease, though they differ upon the question whether it depends upon an inflammatory or purely hyperplastic process. So far as this problem is illuminated by clinical facts, it would seem clear that both views are correct, the disease being at times unquestionably the result of a circumscribed inflammation; at others associated with a simple overgrowth of the elements of the epidermis; and again at times with an inflammation which the hyperplasia has awakened. There is always abundant development of the epithelia in the rete, and, in recently formed patches, distention of the blood- and lymph-vessels in the papillary layer of the corium beneath. In older plaques the rete either dips downward to an unusual extent between the papillæ, or the latter push upward in the manner of wart-like prolongations. It is reasonable to conclude that at times both hypertrophies concur. The corium is thickened later by an increase of its elements which may involve its entire width as far as the connective tissue. In the older plaques also the connective tissue elements are often separated by a slight serous infiltration. Hyper-pigmentation is also noted. The external root-sheath of the hairs in direct connection with the rete participates in the same process, thus explaining the defluvium capil-

¹ In his admirable *Photographic Illustrations of Cutaneous Diseases*, New York.

litii of certain cases, and the resulting transient or permanent baldness. The sebaceous glands are secondarily involved in the scalp only.

Fig. 38.



Vertical section of skin from a patch of psoriasis of long standing. *MP*, Malpighian prolongation; *C*, corium; *L*, leucocytes. (After JAMIESON.)

Lang,¹ of Innsbruck, has attracted notice by his alleged discovery of certain fungous elements in psoriasis, which he claims to be the cause of the disease. These he finds in the whitish pellicle beneath the superficial squamous layer, to which Bulkley had already called attention. After stripping this pellicle or a part of it from the surface, and subjecting it to the action of a five per cent. solution of caustic potash, the epithelium becomes translucent, and upon and beneath the latter double-contoured and highly refractive spores become visible to him. Lang considers this to be a fungus of the lowest species, different from any previously recognized upon the skin. He terms this "epidermo-phyton." In his treatment of psoriasis the author proceeds upon the principles which govern the management of the other dermato-mycoses. He considers that the value of the remedies hitherto found most useful in the disease, such as tar, carbolic acid, chrysarobin, and the mercurials, owe their

¹ Viert. f. Derm. u. Syph., 1878.

efficacy to their destructive action upon the fungus. He has used with advantage a topical application of rufigallic acid in a salve, one part in ten.

Weyl, who believes that psoriasis is due to "an inherited weakness of the nervous centres," has seen Lang's "brood-cells," and regards them as "myelin-like exudations;" but this position is disputed by both Wolff,¹ and Eklund,² who confirm Lang's observations, and believe the disease to be of parasitic origin. They explain the artificial production of psoriatic patches in the psoriatic skin, by supposing spores to have been deposited beneath the skin, and not previously awakened to activity in the sites of such experiments.

Lassar³ has succeeded in producing a disease of the skin in rabbits, by rubbing into various portions of their bodies, scales, blood, and lymph removed from psoriatic patches in a male patient. The disease thus induced is capable of transmission to other animals. Campana, Tommasoli, and other Italian observers, have repeated these experiments, with the result of reaching the conclusion that psoriasis is produced by a parasite as yet unrecognized.

Diagnosis.—The recognition of a pronounced case of psoriasis is made with ease, and often by those unskilled in cutaneous disease. As usual, it is the atypical forms of the eruption which occasion doubt. It is to be distinguished from

ECZEMA.—Eczema and psoriasis differ in a striking manner with respect to their sites of predilection, and their extension from such sites in progressive cases. Eczema, from the head to the toes, elects the anterior surface of the body, the neighborhood of the mucous outlets, the flexor faces of the joints and limbs, the crevices, folds, pockets, depressions, and protected angles of the skin. Psoriasis elects the posterior surfaces of the body, avoids the vicinity of the mucous outlets, spreads abundantly over the extensor aspect of the joints and extremities, and enjoys the regions of pressure and friction, as the skin over the patella and the olecranon process of the ulna. Psoriasis, covering the vertex and scalp, lingers at the brow, where its scaly thatch stretches from side to side close to the line of the hairs, and creeps more indistinctly down the face on either side in front of the ear, reluctant to spread over the cheeks, nose, and lips. Eczema easily escapes from the scalp to the nose, lips, or chin; or lurks in the folds of the pinna of the ear. Psoriasis will cover the back and reach forward in front by almost symmetrically disposed parallels in the direction of the ribs, while eczema sweeps between and beneath the breasts or around the nipple. Psoriasis will cover the belly and spare the navel and pubes where eczema may originate. As before stated, the largest patch of psoriasis on the body will often be discovered over the sacrum, while eczema creeps upward with a diminishing vigor from the anus between the cleft of the nates. Psoriasis often spares the hands and feet, which eczema punishes.

¹ Viert. f. Derm. u. Syph., 1884.

² Deutsch. Med. Zeit., 1885, No. 93.

³ Annal. de Derm. et de Syph., 1885.

In individual patches eczema will be recognized by its severe itching; the scratching it excites; the history of moisture, discharge and crusting; its ill-defined outline; its asymmetrical disposition, except upon the similarly irritated hands and feet; and the fewer, more yellowish, smaller, and less lustrous scales which characterize its squamous varieties.

FAVUS of the scalp might be mistaken for psoriasis of the same region, but the occurrence of its sulphur-colored, cup-shaped crusts, the existence of the parasite, the lustreless and brittle condition of the hairs, and a possible history of contagion, will insure its identification. In psoriasis, too, the hairs are usually firmly attached in their follicles, while they are loosened in favus.

LICHEN RUBER, though a very much rarer disease than psoriasis, must in cases be carefully recognized as distinct from the latter. In it the lesions are papular, distinct, covered by few scales, and these yellowish in color, never lustrous. There is always a constitutional impairment of health, and, when the whole epidermis begins to break up in scales, a condition of well marked marasmus. When scratched, the patches of the disease do not bleed. Finally, lichen ruber tends to a fatal termination.

LUPUS ERYTHEMATOSUS.—In any doubtful case where cicatricial tissue is discovered in the site of a patch where the disease has existed, the diagnosis is clear, since psoriasis never leaves a scar. Lupus prefers the nose, the cheeks, and other parts of the face, commonly spared by psoriasis unless it be very abundant elsewhere. The lupus scales are scanty, firmly adherent, yellowish, and attached to the orifices of the ducts of the sebaceous follicles; those of psoriasis are abundant, lustrous, and shed freely from the surface. Lupus is never, like psoriasis, a generalized eruption; and is always much more chronic in course. There is a bluish and violaceous tint to the reddish patch of lupus erythematosus, especially as it occurs upon the face, while the highly colored patches of psoriasis are rarely facial, being more commonly seen on the trunk and extremities, while the out-cropping disks on the face are the least colored of any on the body.

PITYRIASIS MACULATA ET CIRCINATA.—In this disease the patches are more oval than circular, and the scales much finer than in psoriasis. It is, moreover, much more rapid in its career and does not recur. When the branny scales are removed, the surface beneath does not bleed. The centre of the patch is usually tawny or salmon-colored. The thoracic surface may also be exclusively involved.

PITYRIASIS RUBRA.—If psoriasis be in any case generalized, its distinction from pityriasis rubra would be difficult, if not impossible, on the basis of our present knowledge. Indeed, any such distinction would have but little practical value. A few typical isolated

patches of a psoriatic character would point to the origin of the disease in any doubtful case.

SEBORRHŒA.—This disease could only be confounded with psoriasis of the scalp. But the last named affection is, in the vast majority of cases, exhibited also in patches upon other portions of the body where seborrhœa is never seen. Seborrhœa of the scalp also occurs in usually diffuse forms, the surface beneath the crusts being rather anæmic and pallid in appearance, not bleeding readily, as in psoriasis. The crusts, too, in seborrhœa, are distinctly fatty and greasy when rolled between the fingers, and have a dirty-yellowish hue, never recognized in the whitish scales of psoriasis. Lastly, seborrhœic crusts may fringe slightly the line of the hairs at the brow, but never form a band an inch or more in width, like a frontlet covering the upper half of the forehead, a not uncommon development in psoriasis.

SYPHILIS.—Psoriasis does in many cases greatly resemble the squamous and papulo-squamous syphilides. The necessity for a clear recognition of either disease occurring in suggestive patches, is often of the highest importance.

In syphilis the greatest aid will be attained by a history in both sexes of infection, adenopathy, and mucous patches; and of abortions, miscarriages, or still-births in women. Psoriasis is a singularly uniform disease; syphilis decidedly multiform in its manifestations. The syphilitic patches are less symmetrical, more elevated at the edge, and the scales with which they are covered, fewer, smaller, and dirty-whitish, rather than lustrous in color. In syphilis, the eruption is less generalized, and shares with the other syphilodermata in the brownish and purplish hues of the skin beneath, lacking the vivid redness and pinkish-red of many non-syphilitic lesions. The scales of many of the syphilides, which resemble psoriasis, partake of the character of crusts, being agglutinated by pathological exudations from the patch; they are rarely so exclusively squamous as in psoriasis. In syphilis, the tendency of the patch is to exhibit an affected surface somewhat beyond the line of the scales; in psoriasis, the scales more frequently reach beyond the border of the affected epidermis beneath. The squamous syphiloderm of the palms and soles often occurs in these localities only. Psoriasis is extremely rare in such situations, and is, almost never, limited to that region exclusively. A psoriasiform circlet limited to the region of the mouth, nose, or chin, will generally prove to be syphilitic. The disease which has for a long time persisted in the production of squamous patches can generally be demonstrated to be psoriasis; as syphilis changes its type in the course of months.

TINEA CIRCINATA.—Here the discovery of the parasite, the history of contagion, and the frequent limitation of the disease to a single patch (a feature exceedingly rare in psoriasis), will usually suffice to establish a diagnosis. In ringworm of the body the scales are bran-like, and more abundantly formed at the margin of the

patch where the fungus is luxuriant ; while in psoriasis, the scaliness is usually equally pronounced over the entire area of an invaded patch, unless the disease is in process of involution. The occasional occurrence of vesicles and vesico-papules at the peripheral border of the patch in ringworm, is never observed in psoriasis. Ringworm is never generalized symmetrically ; and upon the scalp or beard the discovery of brittle and broken-off hairs should always suggest examination for the parasite.

Treatment.—As the precise cause of psoriasis is still unknown, all treatment for the relief of the disease must necessarily be limited to the removal of its objective features. This treatment may be internal, with a view to the indirect action upon the skin, of the drug selected ; or topical, with a view merely to the reproduction of a sound epidermis in the patches of disease.

Arsenic enjoys the highest rank in the internal treatment of psoriasis. What it is capable of accomplishing in other cases, it can with best effect accomplish here. Whatever failures must be charged to its account in the attempt to relieve other cutaneous eruptions, cannot safely be ignored here.

The facts are these: arsenic administered internally is assuredly capable of relieving a certain proportion of cases of psoriasis. Given improperly in any case, it may be either powerless or manifestly injurious. In a certain proportion of patients, most carefully selected as fit subjects for its therapeutic action, arsenic will prove utterly valueless in the most skilled hands. It cannot be demonstrated to possess the power to prevent recurrences of the disease, and yet the latter must be recognized as one exceedingly liable to recur. Unfortunately, the proportion of cases in which it will and in which it will not, exhibit its happiest effects, is not known.

The following rules for its administration are to be in general observed. It should be given with or immediately after the ingestion of food, so that it may be commingled with edible substances in the stomach. It should be given at first in small doses, which are to be cautiously increased. The possibility of the production of toxic effects should be remembered, and on the appearance of these the remedy is to be given in a smaller dose, and not completely discontinued unless such a course be imperative. If its administration is once determined upon, the arsenic should not be hastily withdrawn and another remedy substituted for it, but persistence for months should be enforced if no serious objection exist, lest the time be wasted which has been already expended in the effort to relieve the disease.

Arsenic is unsuited for all cases of psoriasis occurring with rather acute symptoms, such as subjective sensations and unusually vivid redness of the patches. It should not be given when the disease is in process of evolution, and, therefore, not in psoriasis punctata and guttata, unless the lesions have been long limited to patches of the sizes to which these names are given. For the same reasons it is often objectionable in the psoriasis of the young, for, though the drug is usually rather well tolerated in such periods of life, it is, unfortunately,

in these also where the disease is most often encountered in its progressive stages.

The remedial effect of arsenic, when such is obtained, seems to depend upon the impression it exerts upon the rete, and that part of it especially which lies in connection with the derma. When the metal is injected subcutaneously, its first effects, according to Jamieson and Nunn,¹ are indicated by the appearance of a faint narrow band along the base of the columnar epithelia immediately next the corium. This is due to a softening of the protoplasm which separates the epidermal from the dermal elements. Subsequently, the remoter epithelia are involved, the protoplasmic threads becoming obscure, the characteristic arrangement of the epithelia less evident, and the natural features of the rete distorted, so that it remains attached to the derma by tags and the prolongations which it sends down to the cutaneous glands. Jamieson suggests that arsenic stimulates the epithelia to exhaustion, that layer which lies next the bloodvessels containing the metal first appreciating its effects.

The preparation usually employed is Fowler's solution, the most soluble of all, whose exhibition should be always begun in doses from half a minim (0.033) to three minims (0.20); this amount to be contained in a solution of fixed and relatively large dose, such as a teaspoonful of the infusion of peppermint; the wine of iron; or dilute syrup of gentian or of orange blossoms; or the compound tincture of cardamom with water. When only remedial effects are obtained, such as diminution of the scaliness, the dose may be steadily continued without change for long periods of time, and usually with advantage for some time after the symptoms of the disease have entirely disappeared. When, without the production of toxic effects, the eruption seems quite unaffected by the treatment, the arsenic may be, very carefully and always under the direction of the physician only, pushed till twenty and even thirty drops of the Fowler's solution [the latter equivalent to one-third of a grain (0.22) of arsenic] are administered at a dose.

The constitution of the Asiatic pill has been given in the chapter on general therapeutics. The pill is less likely to be as well tolerated by the stomach as Fowler's solution, but cases are on record in which the psoriasis which proved rebellious under the administration of the liquor arsenicalis, Donovan's solution, and other internal remedies, yielded to the influence of the arsenious acid in pilular form. Hebra has given two thousand Asiatic pills to a single patient before the disease disappeared; and in no instance has he seen any ill effects produced.

With regard to the vulgar opinion respecting the arsenic habit which a long familiarity with this dosage has been supposed to beget, the author considers it a curious circumstance that he has never yet encountered such an instance in a psoriatic subject who was consuming arsenic. Patients who for several consecutive years have, without

¹ See the paper by the former on the Histology of Psoriasis, *Edinburgh Medical Journal*, January, 1879, p. 627.

interruption, pursued an arsenical course, thus barely succeeding in keeping their cutaneous ailment out of sight, will in many cases affirm that, apart from any trifling and accidental toxic symptoms, and those evident in the course of the eruption, they would not be sensible of the fact that they had taken the drug.

With an enlarging experience, one views with greater distrust each year the benefits to be derived from arsenic in any untried case of psoriasis. The great possibilities of its failure, of the repeated recurrence of the eruption, of the necessity of continuing the medication for one or two years, and even after that period of time, of even then witnessing a generalized development of the disease to an extent quite equal to that exhibited at the outset, all these considerations should certainly have some weight in the mind of an ordinarily prudent man. Is the ultimate result in such cases worth the cost by which it is obtained? In such cases certainly it would seem not. In the others, where, under a judiciously directed arsenical course, the eruption slowly disappears and fails to recur, the value of the treatment is incontestable. As before stated, the proportion in which these two classes of cases are related, is not known. The patients in the last-named category, in all probability, decidedly outnumber the others.

The course which, under the circumstances, seems preferable, is this: Instead of resorting first to the arsenical dose and afterward to other measures, the order should be reversed. That psoriasis which fails to respond to other treatment, may be finally subjected to the influence of arsenic. He who, having vainly tried other approved measures, essays at last the virtues of this medicament, ought certainly to exhibit no impatience while testing his case with it. He should be willing to try it fully and fairly, and be of all men least ready to exchange it for a less valuable substitute. No reference is here made to the effect of conjoined internal medication with arsenic and external treatment by topical applications. However desirable it may be, in the management of any individual case, to arrive at the desired end by the speediest method, it is evidently needful, in order to assign to arsenic its exact therapeutical value, to understand what it can accomplish unaided by topical measures.

As to the other remedies employed internally for the relief of the malady, a very fair estimate of their value can be made by remembering that arsenic is superior to them all. If arsenic fails so frequently, what remains to be said of the other articles in the list? Phosphorus, tar, copaiba, cantharides, colchicum, and pilocarpine, have at times a feeble or transitory influence over the patches of the eruption, but their employment will disappoint far more often than satisfy. Iron, quinine, cod-liver oil, and the salts of the alkalies, will fill important indications in the treatment of certain classes of patients, but these are in the minority, as the eruption is often seen in perfectly vigorous and otherwise healthy subjects.

After the use of any one of these remedies, it is rare to recognize any

decided effect upon the cutaneous symptoms, even when patients in whose case they were indicated, improve under their use.

The same in general may be said of the use of dietary articles in psoriasis. As no ingesta save the substances already named are recognized as influencing the eruption to any perceptible degree, the diet suitable for a patient may be in brief described as that which is both wholesome and nutritious.

Most authors agree upon the value of a greatly restricted diet. Acids, alcohol, and fatty substances should be excluded. Meat should be sparingly supplied; cooked vegetables and fruits may be freely eaten. Coffee, tea, and tobacco should in general be interdicted.

Passavant, of Frankfort, on the other hand, claims to have cured himself and others, by an exclusive diet of meat.

The arseniate of sodium in pill form and arseniate of iron have been recommended by Biell. Lipp has injected arsenious acid subcutaneously. Robinson advises the liquor potassæ, the citrate or acetate of potassium, or the bicarbonate of sodium in plethoric and rheumatic patients. In the gouty state with excess of urates in the urine, he advises:

R. Potass. acetat.	3j;	32	
Spts. æther. nit.	f 3ss;	16	
Vin. colchici	f 3ij;	8	
Syr. aurantii	f 3jss;	48	M.
A dessertspoonful three times daily in water after meals.			

The influence of climate in inveterate psoriasis should never be ignored. It has been already stated that many patients who suffer from repeated relapses of the disease are worse in winter, and either better or entirely free from the eruption in summer. For the same reason, in a mild climate, where the temperature is uniformly registered at or near a point of maximum comfort for the skin, the disease will be both infrequent and less severe.

McCall Anderson believes that sea-air and sea-water are generally prejudicial to psoriatic patients, but the statement is disproved in the cases of hundreds who have removed from an interior climate to the sea-shore, solely with a view to the benefit to be thus received.

The external or local treatment of psoriasis requires patience, care, and a certain degree of skill. Properly conducted, its results are reasonably satisfactory in a large majority of cases.

The first indication to be met is the complete removal of the epidermic scales from the patches, and this is accomplished in various ways. It is preferable to secure first their maceration in some fatty substance, such as one of the oils, or glycerine, or vaseline, after which they may be washed off by the aid of soap and water, in a general bath if the eruption be extensive. If it be localized, these oily or fatty substances may be spread upon pieces of lint or cotton, and thus retained by a bandage in contact with the skin. The scales may also be speedily removed with the dermal curette, if they occur in few patches, or if the latter are to be found in totality or part

upon some portion of the body where the disfigurement demands special attention, as upon the forehead and cheeks. The squamous masses are also removable by water alone, as after maceration of the skin in a bath, or after a profuse diaphoresis, or even moderate exudation of sweat, if evaporation of the latter be prevented by covering the affected part with oiled silk or rubber cloth. Usually there is no difficulty in removing these scales, patients often declaring to their physicians that they can themselves cleanse the surface, if they can be shown how to prevent the recurrence of the desquamation.

Baths play an important part in the subsequent treatment of the disease. They may be employed, as by Hebra, so that the patient remains in the water for from four to eight hours in the day; or be medicated by the addition of sulphur, tar, or other substances, so as to combine a medicative with a macerative effect. In private practice, these baths are much less available than in hospitals. When the eruption is generalized and an excessive macerative effect is desired, the rubber clothing answers a better purpose. In such cases an undershirt and drawers may be worn, made of soft rubber cloth, of the size of the undergarments usually worn by the patient, the latter wearing these for several hours of the day. The sweating is often profuse and debilitating to such an extent that the psoriatic skin will rarely tolerate the treatment for an entire day, or for even that part of it in which active labor is performed. By this means alone, it will at times be found possible to secure complete disappearance of the patches.

In other more obstinate cases, or in those where for any reason such treatment is indicated, as upon the scalp and face, the *sapo viridis* may be employed with advantage in the soap and water treatment. The *spiritus saponis kalinus* [two ounces (60.) of the soap to one (30.) of alcohol] may be briskly rubbed over the patches by the aid of a piece of flannel or sponge, and then immediately washed off with the oil and scales in a surplus of hot water, or be left for a time in contact with the part. Hebra and Kaposi make use of a species of soap paste, made by rubbing into each patch a small quantity of the green soap to which a little water is added till the proper consistency is obtained. These inunctions are repeated twice daily for six days. The epidermis becomes then brownish-colored, and in three or four days afterward exfoliates in lamellæ. Then a general bath cleanses the surface. In the French hospitals, a somewhat speedier method is pursued. On the evening of the first day, the patient is anointed with the green soap which he retains upon the skin during the night. In the morning he takes an alkaline bath, and immediately after is thoroughly anointed with lard. This is repeated on the second and third days, after which the patient is usually ready for any topical medication of the diseased parts.

For the yet more obstinate cases in which the exfoliation of the epidermis is not readily induced, still more energetic measures have been adopted, such as the local use of salicylic acid in alcohol, one drachm (4.) to four ounces (128.), caustic acids and alkalies, scrub-

bing the patches with nail-brushes, floor-brushes, etc., and the use of clean, white sand.

Once ready for topical medication, the patches may first be subjected to the local action of tar, a remedy which has enjoyed the highest reputation for the relief of the disease. It will, however, accomplish the result desired, only when applied so that it is well tolerated by the skin. In very young patients, as also in those whose skins are tender and irritable, or who are suffering from any of the acute phases of the disease, it may prove decidedly injurious by aggravating the latter. The rule should be, always to employ it at first tentatively over a relatively small portion of the surface, upon which the medicament should remain for several hours, as tar will not in all cases promptly produce its injurious effects. These are, subjectively, a sense of heat and pain; and, objectively, heat to the touch, redness, and tumefaction of the part. Often black puncta are visible when the tar is lodged in the orifices of the cutaneous follicles, simulating thus, the "black head" of the comedo, a condition termed by Hebra, "tar-acne."

Pix liquida, the oil of cade, or preferably the oleum rusci may be employed, in the form of a salve, a drachm (4.) of either to the ounce (32.) of lard or other fatty basis (lanoline, vaseline, etc.). A thin stratum of such ointment may be, several times in the day or merely at night, painted over, or well rubbed into a patch denuded of scales. In Vienna, a still more energetic effect is secured by using the soft soap freely over the patches while the patient is in the bath, then anointing him with tar, and finally returning him to the bath where he remains for from four to six hours. For localized eruptions, the green soap in combination with tar and alcohol, serves an exceedingly useful purpose, either in the proportion of equal parts of the three ingredients, or by combining them in other proportions, as, for example:

R. Saponis viridis	℥iv;	130	
Ol. rusci	āā ℥j;	30	
Glycerin.			
Ol. rosmarin.	℥jss;	7	
Spts. vin. rectific.	Oss;	500	M.
Sig. For external use.			

Other combinations of service are Bulkley's "liquor picis alkalinus," the formula for which is given in the chapter on eczema; and Wilkinson's salve, as modified by Hebra, the latter combining the remedial effects of sulphur, tar, and soap, as follows:

R. Sulphur. sublimat.	}	āā ℥ss;	16	M.	
Ol. rusci [crud. vel. rectific.] }					
Saponis viridis }	}	āā ℥j;	30		
Adipis }					
Cret. præparat.		℥ijss;	3.5		
Sig. Wilkinson's salve modified.					

. Where the sensitiveness of the skin to the action of the tar has not been tested, or when the skin is particularly tender, a small

quantity of the Wilkinson salve may be added to any simple ointment, or Spender's ointment of tar (see the chapter on General Therapeutics) may be substituted for it; afterward a drachm (4.) of the oil of tar, or oleum rusci, to the ounce (32.) of oil of almonds or of alcohol, may be employed.

When toleration is established, the tar may be rubbed over the patches in a pure state with a stiff brush, a procedure preferred in some parts of Germany, after which the patient either remains for some hours in bed, or is powdered with soapstone and bandaged with flannel, so that when the clothing is replaced it may not adhere to the tar. Naphthalin, ichthyol, and carbolic acid operate in psoriasis in the same way as the tars, but are decidedly inferior to it.

Absorption of any tarry compound applied externally may result in general toxic symptoms, including fever, vomiting, diarrhoea, strangury, and elimination of the toxic agent in secretions which are blackened by its presence. These symptoms are usually relieved in from twenty-four to forty-eight hours after the discontinuance of the drug.

Kaposi¹ was first to employ beta naphthol, the formula of which is $C_{10}H_8O$ in psoriasis (as also in eczema). It may be applied in alcoholic solution. Under the employment of a fifteen per cent. ointment, the author reported speedy disappearance of psoriatic patches. It did not stain the skin, hair, or nails.

Balmanno Squire,² however, reports that the naphthol was, in certain experiments conducted by himself, without appreciable effect when used in the strength of from ten to twelve per cent., and that, when he increased the quantity of the agent till the ointment was applied in the strength of twenty-five and even fifty per cent., there was the production of merely irritative effects.

By many practitioners, chrysarobin or chrysophanic acid is placed above all the tars in the local management of psoriasis. It is a crystalline powder of the color of old gold, insoluble in water, but readily dissolved in hot alcohol, acetic acid, benzol, vaseline, and hot fat. It is derived from the "goa-powder" of the East Indies, or the "araroba powder" of Brazil, whose employment in psoriasis was first recommended by Mr. B. Squire, of London, Eng., in 1878.

In 1880 the author collected specimens of this powder from the leading chemists of Boston, New York, Philadelphia, and Chicago; and finding these to vary greatly, both as regards the color of the preparation and the therapeutical effects induced, he has since largely employed the Brazilian *araroba em po*³ with better results.

The drug is best applied in the form of an ointment, varying in strength from half a scruple (0.666) to a scruple (1.333) to the ounce (32.) of vaseline or cerate. It is occasionally used in greater strength, but, with pure specimens, it is liable in larger proportions to produce disagreeable effects. These are declared in a hot, itching, swollen,

¹ Wien. Med. Wochens., May 28, June 4 and 11, 1881.

² Brit. Med. Journ., Jan. 14, 1882.

³ This article was obtained from Messrs. Silva, Limaos & Co., of Bahia, Brazil.

irritable, and erythematous skin, stretching from the surface of application, with tolerable uniformity, in every direction. It is, even in the strength named above, necessary to begin its use with caution, testing it by application first to a limited area of integument. These excessive effects usually subside in a few days. An ignorant woman to whom a chrysarobin ointment was given in 1879, with directions to test it carefully at first by application over the elbows of her daughter, stripped the latter before an open fire, and rubbed the ointment over the entire surface for the space of half an hour. The result was an intense erythema lasting for six days with considerable distress, and the complete disappearance of the psoriasis which did not fail to reappear in eight months.

When the drug produces its most brilliant effects, the psoriatic patch, previously denuded of its scales, assumes a whitish and normal aspect, contrasting thus somewhat remarkably with the chocolate to brownish-black discoloration of the normal skin at the periphery. This coloration, when produced either by the ointment directly or by a frequent transfer of its ingredients to other parts by the medium of the clothing and hands, involves also the nails, hairs, and under-linen of the psoriatic patient. Its employment upon the face and scalp is thus largely interdicted. The staining of the skin and its appendages disappears entirely in time, but always slowly.

An improved plan of using chrysarobin externally has been suggested by Fox, of New York.¹

A soft paste is made by rubbing the chrysarobin with a sufficient quantity of water, and smeared upon the psoriatic patches, the scales of which have been previously removed by one or more hot baths, with soap friction. As soon as the paste has dried, which it does in one or two minutes, a layer of collodion should be allowed to flow over each patch, and to harden into a protective coating. This will remain in place for several days, or longer, according to the location of the patches; and when it falls, or is washed off, the application of the powder and the collodion should be repeated. By this procedure, the chrysarobin in full strength is kept in contact with the affected skin, and prevented from exciting undue inflammation of surrounding parts, or staining the clothing. A mixture of the powder and the collodion may be used, but it is less efficacious. A film of collodion doubtless interferes with the action of the acid upon the skin. A somewhat similar plan consists in the use of gutta-percha tissue to retain a strong chrysarobin ointment in contact with psoriatic patches. The edges of this tissue will adhere tightly to the skin if a small camel's-hair brush, dipped in chloroform, be passed rapidly beneath them.

More recently, following Auspitz's plan, this same author has combined these articles in a convenient form, by adding ten parts of chrysarobin and ten of salicylic acid to fifteen of sulphuric ether

¹ The Medical News, March 18, 1882, p. 289.

and one hundred of flexile collodion. This rapidly dries over the psoriatic patch, where its specific effects are produced.

Pyrogallic acid, first suggested as a remedy for psoriasis by Järisch, is inferior to chrysarobin. The fact that several deaths have now been reported as consequent upon its use deters many from making trial of it in a painless and merely disfiguring disease. It is used in a ten per cent. vaseline ointment; is effective, though less rapid in its effect than chrysarobin; is cheaper; is odorless and painless; and discolors to a less extent the sound skin. Both remedies are capable of being absorbed from the surface, and of producing constitutional symptoms, pyrexia, strangury, and blackish evacuations. But in the case of pyrogallic acid only, so far as is known, have these symptoms resulted fatally.

Crocker, of London, similarly uses thymol in ointment, half a scruple to half a drachm (0.666-2.) to the ounce (32.); and Williamson advises turpentine two drachms (8.) to the ounce (32.) of olive oil, with the odor corrected by the oil of lemon. Charteris treated thus a single limb of a psoriatic patient, which was subsequently wrapped in wool, with the curious result of relieving the psoriasis of the other limb, possibly in consequence of the absorption of the remedy. The danger of strangury in such cases must not be overlooked.

The nitrate, as well as the iodides and oxides, of mercury is applied by many practitioners in the form of ointment to patches of psoriasis, usually few in number, and limited in extent. The action of these agents is, however, inferior to those already named, and the range of their availability being quite limited, they should be esteemed lightly in the local treatment of the disease.

The local treatment of psoriasis of the scalp and face by many of the articles named above is often forbidden by reason of their disagreeable odor or too energetic action, or by the staining which they produce.

There is no better substitute for them all in these regions than the ammonio-chloride of mercury in ointment, from ten to thirty grains (0.66-2.) to the ounce (32.). In the same way, the tincture of benzoin may be employed, half a drachm (2.) to the ounce (32.) of salve.

Prognosis.—The permanent relief of psoriasis is not insured by any treatment of a grave case, though hundreds of cases are permanently relieved by even the simplest treatment. The disease often recurs, and may do so repeatedly for the greater part of a life. Permanent relief, therefore, should never be either predicted or promised in any case. Once relieved, it should be the aim of the practitioner to guard against all possible recurrences. After relief of any obstinate or recurrent attack, as also in all inveterate cases, the prognosis is greatly improved by removal to a climate suitable for the psoriatic patient.

Pityriasis Maculata et Circinata.

Pityriasis Maculata et Circinata is a mild febrile disorder of specific character and determinate course, in which appears a cutaneous exanthem in the form of multiple, circumscribed, superficial, roundish or oval-shaped, yellowish and reddish patches, covered with fine scales, and seated for the most part on the trunk.

This disorder, also termed Pityriasis Rosea and Pityriasis Circinata, has been recognized and carefully described by Gibert, Bazin, Horand, and Duhring.

It is a rare disorder, the expert seeing not more than from ten to a score of cases annually. It is also non-contagious and benign in its course, lasting from a few weeks to three months.

Symptoms.—The subjects are children, or more commonly young adults, but the author has seen it in middle life in both sexes. The outbreak of the disease may be preceded for a variable time by languor, lassitude, inappetence, or a feeling of chilliness. Occasionally the first noticeable symptom is in the occurrence of mild fever, the temperature rarely rising above 102° F.

The eruption often escapes recognition for a time after its appearance on account of its sparseness, or the trifling degree of pruritus it arouses. When fully developed, it is characterized by the conspicuous appearance over large surfaces of the trunk, especially the integument covering the clavicles, ribs, and scapulæ, of numerous pin-head to small coin-sized, circumscribed, roundish or oval-shaped, slightly elevated, macular or maculo-papular lesions. These may be discrete, closely set together, or confluent, and instead of being elevated may be either on a level with the general surface, or even slightly depressed, with an annular border. They are dry, covered with furfuraceous scales, and vary in color from a yellow or tawny shade to a deep red. The infiltration is slight, and the patch is superficially situated.

The oval contour is that more often recognized as characteristic of a well developed lesion, its long axis usually at right angles to the vertical axis of the body, and the terminal extremities of the oval slightly frayed by the irregularity with which the fine branny scales are here disposed. The tawny, salmon-shaded hue of such patches is then highly characteristic of the disease, the patch slightly enlarging by peripheral extension, and leaving a relatively clear centre. The scales have often a silvery-grayish hue. The eruption may be tolerably well generalized, but the face and other exposed parts of the body usually escape, though the scalp may be involved. In the latter event the hairs are unaffected.

Etiology and Pathology.—The causes of this disease are obscure. According to Bazin, it occurs in lymphatic and scrofulous patients chiefly.

The most of the cases coming under the author's observation were of patients having light hair and delicate skins, who had been

enfeebled by great physical fatigue or overtaxation in school. Profuse perspiration has been assigned as a cause by Horand. Vidal¹ recognized in the upper portions of the epidermis minute spores in heaps, chains, and circles, called the *microsporon dispar* (s. *anomæon*.) which have unquestionably been seen in other scaling diseases of the skin.

Diagnosis.—The disease is to be differentiated from ringworm of the body by the absence of vesicles, the tendency to symmetry of distribution of the lesions, their multiplicity, the characteristic yellowish centre of the oval rather than circular patch, and the constitutional symptoms. Psoriasis differs greatly in the color, quantity, and character of the scales present, and in the contour of the patch. In the scaling syphilodermata, the region of the body involved, the presence of plantar and palmar lesions, the constitutional symptoms and history, and the color of the patch, which is usually of a deeper and dirtier red than in the disease under consideration, will point to the diagnosis. In the macular syphiloderm ("syphilitic roseola") the closer proximity of the lesions will point at once to the difference, since the patches of pityriasis maculata et circinata are, as a rule, far more widely separated. The greasiness of seborrhœic scales and the pallid hue of the integument beneath, when the former are removed, differ from the congested skin beneath the dry scale in the form of pityriasis.

The treatment is expectant. Quinine, the sodic salicylate, and, later, the ferruginous tonics are indicated in most cases. Finally, tepid bathing in the alkaline or bran bath is usually found grateful. This is to be followed by the application of a dusting powder.

Dermatitis Exfoliativa.

Exfoliative Dermatitis is a more or less generalized, cutaneous disorder in which, either in circumscribed patches or over the entire surface of the body, the skin is reddened and covered with scales which are freely exfoliated from the surface. The disease may be accompanied by febrile and other general signs of systemic disturbance.

Some confusion, both as to the names of diseases and as to the diseases themselves, has existed in connection with the subject of all generalized exfoliative cutaneous disorders. More investigation is needed before definite limits can be established for several of the disorders to which authors refer under these titles. By some, the term dermatitis exfoliativa is held to be synonymous with pityriasis rubra, the disease next to be considered. In these pages, pityriasis rubra is, for the present at least, distinguished as a distinct disease, and dermatitis exfoliativa is made to include the exfoliative and exudative disorders of the skin not properly considered in any other connection.

Classing these latter together, as for the most part of acute type, and distinguishing them from the chronic form of dermatitis exfoliativa

¹ See a communication by the author in the *British Medical Journal*, April 2, 1887, on the distinction between seborrhœa, pityriasis maculata et circinata, and lichen annulatus serpiginosus (Wilson).

represented by pityriasis rubra, it may be said of them all that they often present features of wide diversity. At one time the exfoliative dermatitis begins and ends in a single patient as a well-defined, distinct, and specific disease of mild symptoms, definite career, and benign type. In another case, it occurs as a sudden or gradual change in a preëxisting disorder, such as an eczema or a psoriasis (Gamberini). Again, beginning in one or another of the simpler forms described above, it may become chronic, and, in its symptoms and course, be indistinguishable from a pityriasis rubra.

It may be ushered in with mild febrile symptoms, which may have been preceded or not by malaise, languor, or a variable period in which the general health has been impaired. Often, however, all prodromata are absent.

The eruptive symptoms are a more or less shining and vivid redness of the skin in one or several plaques which become in the course of a week the seat of numerous fine bran-like scales. Any region of the body may be affected, though the articular folds of the skin, genital region, head, and trunk, are often the seat of the disease, which may involve consecutively one part after another till, in a week or a fortnight, the whole surface is invaded. It may be limited to one region, or, yet again, several distinct regions may be simultaneously involved, as the head and lower limbs, or the thorax and external genitals. The hands and feet are usually the last to be invaded. The eruption may appear in reddish patches of well-defined or very indeterminate outline. The skin affected may be slightly, or apparently not at all, infiltrated and raised. The itching may be slight or severe. The redness displayed in the skin which is the seat of the scaling, may be of the brightest crimson, "erysipelalous," violaceous, or purplish shade, or with a faint suggestion of yellowness. The scales are usually formed in the greatest abundance and are commonly seen loosely covering the reddish integument upon which they rest, though they are also shed in the greatest profusion when the surface is lightly swept with the hand. They are always whitish, minute, and bran-like, never in the so-called pastry-crust condition of the scales in pemphigus foliaceus.

In well-marked cases, the features may be slightly disfigured by tumefaction of the lips, swelling of the ears, and puffiness of the lids. In all cases, the skin is dry and never moistened by a pathological discharge. The scales shed in such abundance are always white, imbricated, and silvery in hue. They are usually larger and coarser upon the lower limbs than over the neck, face, or chest.

In the course of the disorder, the hairs may fall; and, in some cases, the resulting alopecia is general. When the nails also are lost, there is rarely any special preëxisting onychia to be noted. The mucous surfaces of the eyes, nose, mouth, and throat, may participate in the general disorder and become the seat of inflammatory and, in rare cases, even pseudo-membranous and exulcerative processes.

The itching may be entirely absent; when present and in severity, it is relieved even before the complete restoration of the integrity of

the skin. It is apt to recur with each relapse, at which time also the fever is usually relighted.

In most cases the disease is terminated in the course of two or three months, after which convalescence from the emaciation and possible complications (furunculosis, abscesses, etc.), may require an equal length of time. Pigmentation is always left for some time after the restoration of the health of the skin.

Pathology.—Brocq¹ has made a specially careful study of this disorder, and his results are more or less confirmed by Vidal and Baxter. These observers recognized an infiltration of the papillary layer of the corium with embryonic cells, dilatation of the papillary and sub-papillary vessels, disappearance of the stratum granulosum and stratum lucidum of the epidermis, and appearance of nuclei in the cells of the stratum corneum. According to Quinquaud,² a diffuse myelitis and parenchymatous neuritis of cutaneous nerves may be responsible for all these changes.

Etiology.—According to Brocq, the disease affects patients who have not previously suffered from any cutaneous malady. The disease is rare; and is said to occur more often in adult male subjects.

Diagnosis.—The disease is to be distinguished from pityriasis rubra by the variety of its symptoms and course; from pemphigus foliaceus by the absence of bullæ and grave systemic trouble; and from scarlet fever, by the absence of sore throat and its much more tardy evolution. Though, in general, a disease having a cyclical career and special characteristics, it may at times be lighted into activity by a diffuse psoriasis of acute type, or a squamous eczema becoming generalized. In such cases the diagnosis is qualified by the preëxisting disorder.

Treatment.—The disease is unquestionably most relieved by any article which induces profuse sweating; and, hence, both jaborandi and pilocarpine have been employed in it with even brilliant success. Quinine, the sodic salicylate, and the mineral acids are often indicated. The strength of the sufferer is always to be supported by appropriate measures. Hebra's diachylon ointment, one part to four of vaseline, with from five to ten grains (0.33–0.66) of salicylic acid to the ounce (32.) of the whole, is usually most grateful to the skin. One of the combinations of lime-water, olive oil, and the oxide of zinc, described in the treatment of eczema may, however, be well employed as a substitute for it.

Prognosis.—The disorder may prove fatal in exceptional cases. Generally, however, recovery may be expected. Often the convalescence is tedious, protracted, and complicated by the occurrence of furuncles and cutaneous abscesses.

DERMATITIS EXFOLIATIVA INFANTUM.—Under this title V. Rittershain³ and others have described an exfoliating non-contagious disease of the skin in infants from six days to five weeks old, the

¹ Arch. gén. de Méd., 1884.

² Bulletin de la Société Anatom., 1879.

³ Ctraltztg. f. Kinderheilk., 1878, Bd. ii.

disorder running from seven to ten days. It is characterized by dryness of the skin, from which branny scales are exfoliated, leaving a peculiarly dry, reddish, and fissured integument beneath. The angles of the mouth and mucous outlets generally are specially involved. Often buccal lesions are present. The face and limbs are the seat of the chief features of the disease. The malady occurs more often in boys than in girls. In severe cases crusts form where the rhagades exist, and there is considerable pain and constitutional disturbance. Occasionally the skin is attacked by furunculosis after the disease has existed for a week.

Pityriasis Rubra.

Gr. *πίτῦρα*, bran.

Pityriasis Rubra is a rare, chronic, and usually grave inflammatory cutaneous disease; as a rule, involving the entire surface of the body, in which the skin is deeply reddened and exfoliates lamellæ of scales in large quantities.

This disease is characterized throughout its course by a superficial hyperæmia and inflammation of the skin, declared by a diffuse redness of a vivid or lurid tint, and an abundance of small or large, lamellated, bran-like scales, which are continuously exfoliated from the epidermis throughout the course of the disease. Patients rarely present themselves for observation till a considerable portion of the surface is involved; but Kaposi states that in two cases observed by him the disease was first noticed in the neighborhood of the articulations. There are never at any time other lesions of the skin, betrayed in vesiculation, pustulation, moisture, or crusting. The palmar and plantar surfaces are usually less distinctly reddened than the face and extremities, having at times even a pallid hue; but they are always covered with a distinctly scaling epidermis.

Under pressure with the finger, the redness subsides or assumes a yellowish shade, while, as a rule, when the integument is gathered up between the finger and thumb, no thickening and infiltration can be recognized. Exceptions to this have been, however, noticed by several observers, the author among the number, in an interesting case made the subject of a clinical lecture.¹ The temperature of the skin is slightly increased. The exfoliation is, as the disease progresses, one of the most striking of its characteristics, the scales accumulating in large quantities about the coverings of the body of the unfortunate patient, who is engaged, as a French writer has it, in the labor of stripping himself involuntarily of his epidermis.

The disease persists for months and years, always more severe in expression as it advances, the papery scales being shed more abundantly, and in larger flakes, leaving beneath them a smooth, shining, occasionally purplish or even cyanotic skin. In the cases observed by Jamieson,² of Edinburgh, and the author, the skin was so dark-hued

¹ Pityriasis Rubra: Chicago Med. Journ. and Exam., Feb. 1881.

² Edinburgh Med. Journ., April, 1880, p. 879.

as to suggest the color of the mulatto. Gradually the patient is conscious of an increasing sense of chilliness, as if deprived of sufficient bodily covering. The itching may be absent, moderate, or severe. Later, the integument seems to retract, as if insufficient to encompass the body, and becomes subject to fissure from extension and contact, while the lower extremities may even be œdematous. This retraction may be so marked that ectropion of the lid may ensue, and wide opening of the mouth become difficult. The hairs and nails lose their lustre, and become friable, often falling, though at times escaping altogether.

The influence of this gigantic, epidermal catarrh, involving, as it does finally, every portion of the surface, does not fail, toward the end, to be perceived by the vital forces. Alternating chills and febrile processes, pneumonias of a low grade, colliquative diarrhœa, tuberculoses, subcutaneous abscesses, bed-sores, and even gangrene of the skin may close the scene.

Hebra and Kaposi have together had under observation "about fifteen" patients affected with pityriasis rubra, who, with a single exception, died from its effects. It will be seen thus that the disease is exceedingly rare. A few interesting cases have been reported by English authors. Among Americans, Duhring, George H. Fox, of New York, and the author, have published reports of cases. The disease is one of early or middle life, and preëminently of the male sex.

Etiology.—The causes of the disease are absolutely unknown. It will be seen that the small number of cases which have been recognized, furnish but an insignificant field for the study of the malady. It is interesting, however, to note in this connection, that the constitutional symptoms of each case seem to have been induced by the disease of the skin, and not the latter by any internal derangement of which the symptoms are made manifest. For not only do these visceral troubles occur chiefly at a late period of the malady, when common observation suffices to show that the cutaneous mischief alone is sufficiently extensive to induce them, but it is also clear, from the wide range of these disorders (bowels, lungs, etc.), that no special visceral malady has excited the cutaneous disease.

Pathology.—The researches of Hans Hebra¹ have demonstrated in two cases that there is, in the earlier period of the disease, an infiltration of the integument moderate in degree, succeeded at a later period by cutaneous atrophy, in which the rete and papillæ of the corium disappear. The connective tissue elements undergo sclerosis; and the glands and the follicles of the skin are destroyed. Pigmentation is abundant. Both he and Fleischman have discovered coincident pulmonary, intestinal, or cerebral tuberculoses; and Kaposi, in one post-mortem examination, established an atheromatous condition of the arteries.

Baxter,² in a case examined by him, discovered no trace of the

¹ Vierteljahr. f. Derm. u. Syph., Hft. 4, 1876, p. 508.

² Brit. Med. Journ., 1879.

stratum granulosum, nor was the stratum mucosum completely separated from the stratum corneum. There was a gradual transition from the polygonal prickle-cells below, which readily stained, to the horny cells above, which remained colorless. Flattened and faintly stained nuclei lay parallel to the surface, and could be recognized even in the enormously hypertrophied stratum corneum. The papillæ were enlarged; the inter-papillary projections of the rete had pushed deeply into the corium. The prickle-cells of the hair-sheaths were multiplied. The remarkable consistency of the thickened corium at the outset of the disease, was regarded by him as chiefly due to a fluid exudate, which was observed before death.

Diagnosis.—It is clearly necessary to add to the facts given above, that many cases loosely reported as instances of pityriasis rubra, are not really such. The misinterpreted symptoms are often those of an unusually extensive psoriasis or chronic squamous eczema, which commonly terminates favorably in the course of a proper treatment. Experts are often summoned to see such eruptions, whose import has been misunderstood.

In lichen ruber the essential lesion is a papule, which even in the later extensive scaling of that disease may usually be recognized in some part or another of the infiltrated skin.

Psoriasis rarely extends over the entire surface of the body, but it will be at times thus generalized. In these very exceptional forms, a long history of typical psoriatic patches may usually be obtained, while the bleeding surface beneath the scales, and the character of the latter, will point to the true nature of the disease. Psoriasis occurs in healthy, pityriasis rubra in cachectic constitutions. Extensive erythematous or squamous eczema, apart from all other symptoms, can be recognized at once by the excessive distress occasioned by the eruption. The patient lies in bed nursing his or her tender limbs, back, or belly. In pityriasis rubra, the patient rises, dresses himself, and moves about with an expression, not of pain but of listless apathy. His scales are not scanty and adherent, but abundant and exfoliating freely. There is, from first to last in his case, no history of moisture. In every generalized eczema, there will be always, at one point or another, a surface which weeps. In its early periods, pityriasis rubra can be distinguished from pemphigus foliaceus by the absence of bullæ, and of the intolerable stench which is then often emitted by the sufferer. When, however, there is present merely a generalized exfoliative dermatitis, the two disorders may be well-nigh indistinguishable.

Treatment.—Arsenic administered internally seems powerless in pityriasis rubra. Cases are on record of fatal results after the exhibition of this drug in prodigious quantities for long periods of time. Tar externally promises no better. Kaposi reports a single case relieved by the use of carbolic acid internally.

A roborant treatment, including the employment of cod-liver oil, iron, or quinia, is certainly indicated, with the simplest bland unguents externally. Of the latter, vaseline seems best tolerated. It should

be employed, not merely to soothe, but also to protect the skin. The clothing should be ample and unirritating; and the diet carefully selected with a view to supporting the strength.

The prognosis is necessarily grave.

Lichen Planus.

Gr. λειχήν, moss.

Lichen Planus is a chronic and exudative affection characterized by the appearance upon the skin, of multiple, usually symmetrical, pin-point to split-pea sized, discrete or aggregated, flat, polygonal, yellowish or purplish-red, smooth and glazed papules, having the appearance of umbilication at the apex.

Symptoms.—The first symptoms of the disease are the characteristic papules, which are glazed, waxy, umbilicated, scaling at the apex only after they have existed for some time, pin-point to rape-seed in size, and roundish, angular, or oval in contour. They are usually firm, and particularly well characterized by the minute punctiform depression of the flattened apex, described as an “umbilication.” They are at first irregularly disposed, but later tend to arrange themselves in groups about the flexor aspects of the wrist and knee, the palmar and plantar surfaces, the lips, lids, cheeks, shoulders, penis, and other parts, as of the trunk and limbs. Often, as the lesions persist, they become flatter, assume a characteristic purplish-red or dark-brownish shade, and surround themselves with closely packed, newer lesions in circlets or parallel lines. In this way, distinct, sepia-tinted patches may form, whose progressive involution leaves dark-brown atrophic depressions in the skin, suggesting cicatrices. The itching may be moderate or severe. The eruption is chronic in its course; tends to linger for years within distinctly circumscribed areas, and seems to exert upon the constitutional forces little or no influence. As it is amenable to treatment, it has been less studied in its unmitigated features; but Kaposi thinks that in the majority of cases it would, if unstayed, become generalized. In one case only has he noted the occurrence of emaciation and other symptoms of disturbance of the general economy.

Many lesions in the neighborhood of those well developed are the smallest papules recognized in diseases of the skin. They are no larger than the points of small pins, scarcely if at all elevated, and have either the color of the normal skin, or are whitish, lilac-tinted, or yellowish. They all, however, are, as Wilson first described them, “smooth, shining, and flat.” The older groups may be either in circles or bands of various lengths having a violet, or bluish-red, or even a coppery hue.

The other special characteristics of the papules are their angular outlines and the adherent horny covering of each. As to the former, the characteristic singularity of the sides is most conspicuous as the papule becomes developed; but even in the exceedingly minute pin-

point sized lesions with a glass one may often detect the polygonal outline which later on can be distinguished with the naked eye. The surface of each is covered by a thin stratum of horny epidermis, which is not a true mass of scales since it does not exfoliate. In some types of the disease, a patch, whether band-like or circular, of aggregated and well-developed papules may include also an infiltrated interpapular skin, with a grade of inflammation which may result in severe general scaling, and with changes induced by the traumatism of scratching to relieve a consequent mild or severe pruritus.

The course of the disease is decidedly chronic, but its lesions are never complicated by vesiculation, pustulation, or by changes in the hairs and nails. Upon the lower extremities, after it has existed for a long time, a single band-like plaque of the disease may lose almost all of the papular features, and come to resemble a deep purplish keloid-like elevation or flat tumor embedded in the skin, with whitish miliary points or streaks at the border. When involution is complete, there is usually very deep pigmentation and at times slight atrophy.

Weyl describes the whitish points and streaks referred to above as visible at times even in the smaller lesions, the horny scales projecting from others like thorns, and fantastic groups on the body in the form of a cockade or in a whip-shaped curve.

Under the title *Lichen Ruber Monileformis*, Prof. Kaposi¹ reports a curious form of this disease, in which the lesions were nearly symmetrically arranged upon the extremities, neck, and lower belly, and in which the papules were strung like beads along definite linear cord-like elevations.

Lavergne divides all cases of lichen planus into three classes. The first is chronic lichen planus, the disease as it is known in its most common form. The second is acute lichen planus, in which the papules rapidly develop, and form extensive patches, thickened, painful, livid red, and abundantly desquamating. The third form is the lichen planus corneus of Vidal, Fournier, Besnier, and Héguy. It corresponds to the coin or palm-sized, bluish to blackish, scaling and rugous, tumor-like plaques, usually seen on the anterior face of the leg, briefly described above.

Pospelow² and Thibierge³ have observed buccal lesions occurring in lichen planus on the mucous surface. Wilson, Hutchinson, Kaposi, and Crocker have described similar lesions, which are to be carefully differentiated from the patches of leucoplakia buccalis (so-called "psoriasis buccalis"), epithelioma, and the mucous patches of syphilis. The plaques are whitish, thickened, and uniform elevations of the mucous surface, grayish-white, or resembling in color the places to which the nitrate of silver has been applied, with irregular contours, often horizontally disposed between the teeth. These may be due to confluence of pin-head size papules of lichen planus.

¹ Viertel. f. Derm. u. Syph., 1886, 4 Hft., with chromolithographic illustration.

² Viert. f. Derm. u. Syph., 1885, p. 533.

³ Annal. de Derm. et de Syph., 1885, p. 66.

Etiology.—The causes of the disease are obscure. It is seen in both sexes, and at all ages, but is decidedly more common in early and middle adult life. Debility, digestive disturbances, and neurasthenia have all been named as effective causes; but it is seen in very fleshy middle-aged women and strong men.

The evidence that connects this disease more directly with the nervous system is of great value, and annually accumulating. In some cases, distinct coincident neuralgias of the head and lumbar region are reported. In yet others the papules have been noticed distributed in the areas supplied by given nerves, or occurring after injury of such nervous branches.¹

Pathology.—Robinson first clearly showed the pathological distinction between lichen ruber and lichen planus. His observations have been confirmed by those of Böeck, Kaposi, Touton, Weyl, and others.

The first changes noticed in the skin are increase in the lumen, and a sinuous condition of the capillaries supplying the one or two papillæ concerned in a single papule. The papillæ, thus largely filled with dilated capillaries, also contain a network of fine connective-tissue fibres, and dense, round cells, which proceed to multiply. Later, more papillæ are concerned in this process and also the epidermis. In the places where the white points are exhibited, granules of kerato-hyalin become visible. In some portions of a lichen papule of medium development, the stratum corneum exhibits an external, dark, narrow, and firm layer, and beneath it two to four rows of translucent cells forming the stratum lucidum; but in other parts, and when fully developed in all parts, the stratum corneum breaks up into definite lamellæ, a phenomenon seen in other disorders attended by derangement of the kerato-genetic function of the skin. The external layer is dark, when stained, and firm; next below it is a wider layer of swollen cells with nuclei scarcely visible or relics of liberated nuclei; and, still deeper, a narrow and solid layer beneath which the stratum lucidum becomes visible.

In Robinson's sections, the horny layer was almost entirely absent over the region occupied by the cell-packed papule, below which the corium was normal. The rete was hypertrophied centrally, especially in the region of the sweat-ducts; its cells above the affected papillæ horizontally flattened, and the granular layer thickened. In some places it was difficult, in consequence of these changes, to distinguish between the rete and the corium beneath. The cell-infiltration, composed largely of embryonic white blood-corpuscles, extended more deeply into the corium in the neighborhood of the sweat-ducts.

Briefly, it appears that the papule of lichen planus is the result of a primary hyperæmia of the papillæ of the corium; a secondary thickening of the lower part of the rete; a tertiary flattening of the papule by reason of the resulting pressure, producing thus the appearance of umbilication; a proliferation of cells in the granular layer, as a result of which the deposit of kerato-hyalin in whitish points or

¹ See Report of Two Cases, by Dr. Stephen Mackenzie, Journ. of Cutan. and Ven. Dis., 1885.

sheets occurs sufficient to produce the clinical peculiarities having that appearance (not due, as Neumann supposed, to changes in the sweat-glands); and coloration of lesions due to both vascularization and to escape of blood corpuscles.

Diagnosis.—The diagnosis rests on the characteristic shape, size, color, grouping, disposition, and umbilication of the papule of lichen planus; which are not found in any other papular disease. Thus, in its size, apex, color, and course, the papule of papular eczema is quite different from that described above, being brighter, redder, more acuminate at the apex, and much more often followed by or accompanied by catarrhal symptoms. In psoriasis punctata, the scales are abundant and readily removed; the individual lesions also increase rapidly by peripheral extension, far beyond the fullest development of the papule of lichen. The papular syphiloderm is not pruritic, not flattened when minute, not polygonal in shape, not covered with a closely adherent horny scale, and always occurs in patients where careful investigation will disclose other symptoms of the disease (mucous patches, adenopathy, etc.).

Treatment.—Roborant treatment by quinine, the mineral acids, the ferruginous tonics, and cod-liver oil, is frequently indicated. Though it is claimed that arsenic actually aggravates the disease, the author agrees with Hebra, Wilson, Duhring, and others, in ascribing to it the most brilliant results obtained in the treatment of lichen planus, results far more consistent than are obtained from the same drug in the management of psoriasis. Böeck and Taylor give fifteen grains (1.) of the chlorate of potassium in four ounces (128.) of water, fifteen minutes after eating, followed in a quarter of an hour by twenty drops of the dilute nitric acid, swallowed in a wineglassful of water. Robinson, in generalized and hyperæmic cases, praises the alkaline diuretics (acetate of potassium with sweet spirits of nitre), well diluted after meals; and Fox regards mercury as valuable in the chronic forms of the disease, for which also he administers asafœtida.

Finally, Koebner has injected both pilocarpine and arsenic subcutaneously with success; Unna has used one part of corrosive sublimate, twenty parts of carbolic acid, and five hundred of the benzoated oxide of zinc salve; Vidal employs baths of vinegar, one litre to the bath; and the external application of one part of tartaric acid to twenty of the glycerine of starch; and Wilson employed a mercurial salve two grains (0.13) to the ounce (32.). Tar, ichthyol, thymol, iodine, and chrysarobin may also be successfully employed topically. Weyl has employed caustic applications; as also one to two parts of β naphthol to ninety of rectified spirits of wine, and ten of glycerine.

Prognosis.—The prognosis is always favorable, as the disease, even when chronic, tends to spontaneous disappearance.

Lichen Ruber.

Gr. *λειχήν*, moss.

Lichen Ruber is an exudative cutaneous disease, characterized by the appearance of firm, millet-seed to split-pea sized, reddish, conical, discrete, or confluent papules, whose evolution may be accompanied by a moderate degree of itching, the eruption having a marked tendency to generalization and the induction of a fatal marasmus.

Under the term Lichen Ruber, Hebra was first to describe the disease which is now recognized under this title, and which was, at one time, thought to include lichen planus, the two diseases being merely different expressions of a single pathological process. It has been already shown that lichen planus, which is much the more common of the two, has no relation with lichen ruber. Very few cases, indeed, of the last-named disease have ever been reported in this country; and there are authors who deny its existence as an independent affection, claiming that the conditions described under the name should be properly assigned to other categories.

Symptoms.—The disease is first characterized by the appearance, without prodromal symptoms, of isolated, pin-head sized, conical, reddish, and scale-capped papules of considerable firmness, bright red or livid in hue, and disseminated over the belly, chest, genitalia, extremities, and other portions of the body. In another form of the disease, these lesions are lighter in color, with a smooth surface, a small central depression at the apex, and a waxy appearance. It is these latter which have suggested that lichen planus is a variety of this disorder. The itching excited may be mild or severe. It bears no relation to the extent of the exanthem.

The papules rapidly multiply, forming patches which by aggregation eventually cover entire regions of the body, and, lastly, its entire surface. Throughout all, the individual papules do not enlarge at the periphery, but persist as such till they are lost in a diffuse, dull-red, infiltrated patch, covered with thin, papery, grayish, non-adherent scales, beneath which the orifices of the hair-follicles are seen to be dilated.

Occasionally at the borders of a patch thus formed, isolated, shining flattened, or umbilicated papules persist or form circles of densely packed lesions, surrounding groups in which involution of the lesions progresses, leaving pigmented and atrophic areas within.

Whether in the form of the lesions last described, or after irregularly disposed disseminated patches have been developed, the entire integument becomes eventually the seat of extensive infiltration, reddening, and scaling. As a consequence fissures form; and the distress of the patient increases.

The skin of the face cracks; the lids are everted or thickened; the skin of the palms and soles is converted into leathery tissue; the nails become friable and irregular; motion at the joints is excessively painful, on account of the inelasticity of the skin covering the articu-

lations; the hairs are thinned and fall; the extremities are maintained in a position midway between flexion and extension. The integument is now universally reddened, covered with innumerable delicate or coarser scales, and, especially upon the palmar and plantar surfaces, thickened by dense infiltration. Over the deeper fissures, extending to the corium, blackish and blood-containing crusts form. Emaciation progresses *pari passu* with the invasion of the disease; and death may result from exhaustion, an intercurrent diarrhœa, or a pneumonia.

Etiology.—The causes of the disease are unknown. The sexes seem to suffer in equal proportion, though it is claimed that more men than women are affected. The disease is neither transmitted by heredity nor contagion. In those who display the symptoms of the affection, external irritation is capable of aggravating the eruption. The disease is chiefly encountered in middle life from the tenth to the fortieth year, but has been observed as early as the eighth month.

Diagnosis.—In psoriasis the discovery of a typical scaling patch, often with a clearing centre, should suffice for recognition of that disease. The scaling also in diffuse psoriasis is much more abundant. In papular eczema, the lesions do not persist as such. When these two affections are generalized, it is claimed by French observers that there is always some one area, however small, of unaffected integument. This is not true of generalized lichen ruber. But, in such generalized cases, the distinction between that disease, pityriasis rubra, and dermatitis exfoliativa may be extremely difficult, if at all practicable or possible. At an earlier period, papules are not seen in either of the two last named disorders. The papules of syphilis never scale so generally as those in lichen ruber; they, moreover, in cases, increase to double their original size; and are always accompanied by some other symptom of that disease. In the scaling stage of pemphigus foliaceus, there are bullæ present or a history of such lesions preëxisting.

Pathology.—According to Robinson, lichen ruber is a paratypical keratosis. It is characterized by hypertrophy of the stratum corneum and incomplete corneous transformation of the individual elements of that layer, which are larger and more polygonal, a feature most noticeable about the sweat-ducts and hair-follicles. The rete is in places enlarged and in places normal. The upper portion has an uneven appearance as the interpapillary portion pushes slightly downward and the increase in size of the other parts is more marked. The papillæ are increased in size; their bloodvessels dilated and surrounded by emigrated corpuscles. The walls of the sweat-duct are formed of large cells with vesicular nuclei; corneous cells are heaped also about the orifices of the hair-follicles: the muscle-bundles are much hypertrophied.

Treatment.—Arsenic is of greatest value and can be employed with large chances of success in lichen ruber. The drug is to be early given, persistently pushed in the face of new crops of lesions, till the desired result is obtained, and continued for several months after all

signs of the disease have disappeared. Tonics when indicated, should always be exhibited. The diet should be generous.

The external treatment is naturally employed chiefly for the relief of any pruritic sensation. Here the dusting powders and ointments prove serviceable. The local remedies employed in corresponding stages of eczema may, in brief, be here used with advantage, such as the alkaline, starch, or bran bath; and followed by inunction of the skin with salves containing thymol, salicylic acid, zinc oxide, bismuth, carbolic acid, or benzoïn.

Prognosis.—The prognosis of the disease, when it refuses to yield to treatment and tends to become generalized, is necessarily grave. Treatment after the occurrence of marasmus, will often prove ineffectual. The disease is said to be occasionally amenable to energetic treatment before it has advanced to the stage of inducing systemic exhaustion.

Eczema.

Gr. ἐκ ξέω, to boil forth.

Eczema is a non-contagious, acute, or more frequently chronic, inflammatory disease of the skin, beginning as an erythema, or by the appearance of isolated or grouped papules, vesicles, or pustules, either singly, simultaneously, or in succession, resulting in redness, catarrhal symptoms, scaling, crusting, and infiltration of the skin, accompanied by more or less intense itching and burning sensations, and leaving, after complete resolution, no cicatrices.

Symptoms.—Eczema is one of the diseases of the skin of most frequent occurrence. In the statistics gathered by medical men, it would seem to rank first in the order of frequency. But it is only true as regards those diseases for which the physician is commonly consulted. It is easy to become convinced that acne is a more frequently encountered affection than eczema, by observation of the faces of individuals on the streets of any large city, eczema being of more frequent occurrence in this situation than upon other parts of the body. Many persons are the subjects of acne who never deem it necessary to submit to treatment for its relief, and the records of such cases do not figure in dermatological statistics. This being noted, eczema may be regarded as the disease of the skin for which most frequently the practitioner of medicine is consulted. By as much as inflammation is the most common accident of other organs of the body, by so much is its enveloping organ subject to the same pathological process.

The surgical signs of inflammation of any given tissue are usually named as increased heat, redness, pain, and swelling. These are essentially the symptoms of an eczema; and it will be necessary, in order to study the disease intelligently, to inquire how these phenomena are modified by the anatomical peculiarities of the organ in this case affected. A typical eczema is always betrayed by an elevation of the temperature of the surface, and by a greater or less

degree of swelling. Redness, in various shades, is also true of the eczematous skin. Pain here is represented by a sensation usually of itching, which may vary from slight annoyance to an almost intolerable distress. The variation in the sensation which accompanies inflammatory disorders of the skin and other organs is merely due to the fact that the former is exposed to the air, and its increase in bulk is not opposed by other contiguous parts, as, for example, the inflamed bone in contact with periosteum, or the pathologically enlarged prostate within its fibrous capsule. Inflammation of the inner skin of the body, as of the lining membrane of the stomach or of the intestines, is generally characterized by the occurrence of increased heat, redness, swelling, and severe pain.

Inflammation of tissues constituting other organs of the body usually terminates either in resolution, in the free production of pus, or in the occurrence of gangrene. And so an inflammation of the skin may terminate either by resolution, or by the free production of pus on its surface, the living matter rapidly multiplying as the intensity of the process may determine. Gangrene is not a classical result of eczema, chiefly because of the freely exposed position of the organ affected.

The great variety of expressions assumed by an eczematous disease, and the frequent interchange of these, the one for the other, are to be accounted for in the same way. The atmosphere which surrounds the body is but one of many external influences capable of affecting the skin. Thus it is rubbed and scratched, exposed to the friction of the clothing and the incursions of insects, and subjected to innumerable injurious contacts in all the various trades and occupations of life. If the inflamed skin could be as perfectly protected from the outer world as is the spleen, we should find the history of this affection much simplified.

Clinically, several types of eczema can be recognized. These require separate description. It should not be forgotten, however, that each may prove to be not a variety, but a stage of the disease, which may speedily give place to yet another.

[A.] *Eczema Erythematosum.*

In this form of the disease the conspicuous symptoms are heat, redness, and swelling, with a variable degree of itching, usually less severe than in several of the other phases of the malady. The process may begin with acute and intense symptoms, to be soon followed by one of the varieties of the disease to be subsequently described, or, what is perhaps more commonly the case, may continue indefinitely as a subacute or even chronic affection. In color the skin of the part involved varies from a light to a darker shade of red; and inasmuch as the process is more frequently observed in middle-aged adults, with darker hue of the integument than in early life, the color of the part is frequently noticed to be of a dull shade. In consequence of the swelling, the affected surface is notably elevated

above the level of the unaffected contiguous skin, and the line of demarcation between the two can be more readily traced than in several of the other varieties of eczema. The surface is usually uniformly and occasionally symmetrically involved. Lesions, other than the erythema, which is the prominent feature of the attack, may not be observed; and, as a consequence, from the beginning to the end of the disease, there may be no history of moisture. But in many cases, minute poppy- to rape-seed sized papules become visible on close inspection, still more rarely with a very minute vesicular apex filled with a droplet of clear serum. The localities chiefly thus involved are the face, the palms, the soles, and the regions about the genitalia, though any portion of the body may be affected. Resolution is accomplished after the occurrence of a very fine superficial desquamation of the epidermis, or by very gradual diminution of the redness and swelling without the production of scales. In either event the termination of the process is often announced by significant changes in the involved surface, as by the fading of color, the appearance of islets of sound skin between affected patches, and by perceptible relief in the subjective symptoms.

Such is the course of a typical erythematous eczema. Variations from this type are, however, numerous and important. Thus the disease may be limited to a patch as small as a finger nail, or may extend over large areas, especially after subjection to irritation. At times the coloration is irregularly distributed, producing a mottled appearance, brighter at one point and darker at another, while again, as has been indicated, the variety described may coexist with, or be followed by, the weeping, excoriation, and crusting which are characteristic of other manifestations of eczema. Scratching of the part involved produces a change in the symptoms which the skilled eye will promptly recognize. Minute superficial losses of tissue are then visible here and there upon the surface; the fresher with a reddened floor possibly hidden beneath a thin blood-scale, the older surmounted by a light yellowish-red crust. The scratch-lines, so often recognizable elsewhere, are here less frequently evident.

Like all the other varieties of eczema, this is extremely liable to recrudescence and relapse. In advanced life, the traces of the disease may be visible for years.

[B.] Eczema Papulosum.

Under this title are classed all those forms which have long been described as *LICHEN ECZEMATODES*, *ECZEMA LICHENODES*, etc. "Observation of the natural course of an attack of eczema," says Hebra, "furnishes the most unassailable proof of the connection between its various forms. In one case an eruption of vesicles begins the series of symptoms; in another, it is preceded by the appearance of red scaly patches or groupes of papules; or vesicles and papules are developed together, some of the former rapidly changing to pustules, and forming yellow gum-like crusts by the drying up of their

contents." It is of the greatest importance that there should be a distinct and more general recognition of the fact, that eczema may exist from first to last as a dry infiltration of the integument, for there is perhaps no one of the various manifestations of the disease that is so frequently mistaken, and confounded with other widely different affections.

The poppy- to rape-seed sized papules which are developed in its course, are usually seated upon a reddened and thickened base, and are themselves colored in various shades of red to a dark lurid shade. They are usually discrete, though often closely set together; are accompanied by a severe form of itching when irritated by scratching, and of all eczematous lesions are most apt to be thus irritated. Their summits are torn, and often to such an extent as to bleed, the blood drying in reddish crusts over the area involved, or limited to minute blood-scales on the apices of individual lesions. The extent of surface affected varies, as usual in the other varieties, being in cases largely diffused in patches over various portions of the body, or limited to small and single patches no larger than a silver quarter of a dollar. Such patches, covered with a single or several groups of reddish papules, may continue to torment the patient for long periods of time, or, being at one time relieved, recur with each aggravation of the part by the exciting cause. Papular eczema is the dry manifestation of the disease, and is thus most frequently noticed upon the drier portions of the integument. These are the surfaces of the limbs, the back of the body, and, in particular, the scrotum. In the latter region, the lesions giving a name to this variety of the disease are most fully developed. If the moist forms of eczema are most frequently seen in early life, it is none the less true that the dry forms are most common in adult life or advanced years.

It should not, however, be forgotten, that the papules here described may develop into minute or larger pustules, or may exhibit minute vesicular summits when there is free exudation beneath the surface. It should be added, that a patch of papular eczema, where no vesiculation nor pustulation has been observed, will, if sufficiently scratched, ooze with moisture, the serum escaping from the abraded surface. There are, in fact, few scratched eczematous surfaces which will not moisten a dry handkerchief applied to the part. This weeping condition attracts the attention of patients themselves, who will complain of it in describing their symptoms to a physician. A certain species of relief for the pruritus is thus obtained; and in aggravated cases patients will scratch, or rub, or otherwise irritate their diseased patches, not merely for the purpose of gratifying the intense desire to assuage this symptom, but also to induce the serous exudation for the sake of the relief it affords. The secretion when in contact with linen cloths stains and stiffens them, very much as seminal fluid leaves its traces upon the clothing.

Resolution of papular eczema is accomplished after the formation of scales, the tissue beneath the latter assuming more and more the appearance of healthy skin.

[C.] Eczema Vesiculosum.

This variety of the disease is, as its name implies, characterized at an early period by the formation of minute vesicles. It is a matter of importance, however, to recognize the fact that the vesicular, like the erythematous, is but one of several manifestations of this singularly protean affection. Long after the appearance of the treatises of the early English dermatologists, the term *eczema* was very generally limited by physicians to the vesicular phases of the disease; and it is to the Vienna school that we are largely indebted for the recognition of the fact that these simultaneous or successive features, presented often in the same individual, really belong to one and the same malady. To limit the name *eczema* to-day to its vesicular variety alone would be to relegate the student of diseases of the skin to the misty uncertainties of the last half century of dermatology.

The clinical features of vesicular *eczema* are chiefly due, first, to the acuity of the inflammatory process present; and second, as the result of the former, to the free exudation of the serum of the blood from the vascular plexus immediately below the *pars papillaris* of the corium. The involved surface usually feels at the outset hot, itchy, or particularly sensitive, and soon after becomes more or less intensely reddened, the hyperæmia producing this effect in the course of a true exudation which may last for one or several hours. Poppy- to rape-seed sized vesicles then become visible on this reddened base. The lesions may be closely packed together, or discrete, or may be so abundant as to coalesce, a frequent behavior of all vesicular lesions. Each is filled with a droplet of clear serum, imprisoned beneath the most superficial layers of the epidermis. The vesicle is readily ruptured, and, if this does not speedily occur as the result of accident, it bursts spontaneously, and its limpid contents are then poured out upon the surface of the integument. The quantity of the fluid thus exuded is in excess of that originally contained in the small vesicular chamber. This is due to the fact that the elevated, macerated, and broken epidermis no longer presents an obstacle to the outflow of the serum from the engorged vessels beneath. Minute and even large drops of a clear fluid of syrupy consistency can be seen forming at the points where the solution of continuity has occurred. If with a slip of bibulous paper the first drop be removed, its place is visibly filled by a second. Crops of new vesicles succeed the first, each followed by the train of symptoms described. The weeping at many points of the surface thus affected, is so prominent a feature of the disease that it has led several authors to describe *eczema* as invariably a catarrhal disease of the skin. There are, without question, forms of the disease where the history is throughout entirely different from that just described, where no evidence of discharge can be appreciated from first to last, and yet where, by artificial measures, the so-called catarrhal features can be readily produced.

The subjective symptoms of the vesicular forms of *eczema* are more

or less intense itching and often burning. In the very acute forms there is considerable soreness, the patient managing the affected part with as much care as if it were a fractured limb. In exceptional cases, more frequently observed in children, there is sympathetic febrile disturbance of a mild grade.

The discharge from the broken epidermis, whether directly from the vesicles, or from the vascular elements, dries rapidly when exposed to the air, in light yellowish crusts, which are rarely bulky. The extent of surface involved is variable, and the contour of the affected patch or patches is seldom well defined, these portions imperceptibly shading into the sound skin. The color of the area thus diseased varies according to the stage of the process, being at one time of a bright and vivid red, at another yellowish, and when covered with crusts or scales, undergoing a corresponding change of hue. Infiltration of the skin occurs rapidly, so that when a portion of the affected integument is pinched up between the finger and thumb, it is found to be thicker and less elastic than before.

As resolution approaches, all the symptoms described above gradually decline in severity: the serous discharge diminishes, the redness fades, the limits of the involved area are less distinct, the crusts loosen and fall, and it can be seen that beneath the scales which have taken the place of the oozing and broken epidermis, a new and tender epithelial covering has been produced. As a rule, for weeks after the process has completely ceased, the newly formed epidermis has a slightly reddened and tender appearance, though complete resolution is followed by no permanent sequelæ.

Such then being the typical phases of vesicular eczema, it must not be forgotten that clinically the picture may be quite different from that described. The types here given are convenient for analysis and study, however they may be commingled and obscured in the inflamed integument. Like the erythematous, the vesicular forms of eczema may precede the others, and becoming chronic, torment the suffering patient continuously for long periods of time, or yield, only to reappear at irregular intervals.

[D.] *Eczema Pustulosum.*

This variety of the disease may originate in one of the other forms of eczema, which, in consequence of the severity or acuity of the process, changes from an erythematous, papular, or more commonly vesicular type, or the pustular lesions may rapidly form at the onset. Usually a crop of minute vesicles is first seen of the sort just described, which, after enlarging to the size of a coffee-bean, become distended with puriform contents. These either accidentally or spontaneously burst, and the fluid with which they were distended dries into yellowish-green or darker-colored and friable crusts. In aggravated cases the purulent matter seems to form directly upon the surface involved. If the process be long continued, infiltration occurs; and the itching, which in all varieties of the disorder is a charac-

teristic feature, is awakened as an accompanying symptom. It is, however, rarely of the peculiarly aggravated type which accompanies the erythematous and papular phases. Pustular eczema is most frequently encountered in the regions of the head, and in constitutions where there is a pyogenic tendency. When existing on the scalp and face there is most commonly an involvement also of the sebaceous glands, whose secretion, altered by the periglandular inflammation, is added to that naturally produced by the exudative process. Singular shades of mixed yellow and green, and even black, are then to be distinguished in the resulting crusts, which later desiccate and fall, leaving a reddened and tender new epidermis beneath.

Pustular eczema, as thus observed, has been described under a great variety of titles. Its identity as a form of eczema was first accurately distinguished by Hebra, in his experiments on the artificial production of the disease upon the surface by the external application of croton oil. It has been called *IMPETIGO FIGURATA*, *MELLITAGRA*, *PORRIGO LARVALIS*, and other singular names, which suggest the attempts of the early astronomers to designate the constellations by their resemblance to the figures of animals. These, and many other useless terms, have been finally dropped from the nomenclature of modern dermatology.

The four types of eczema considered above are, as has been stated, sometimes encountered in practice as distinct and unmingled forms of cutaneous disease, some of them more commonly than others. To present, however, a picture of eczema as it is seen clinically, it must be understood that these several forms, useful in the analytical study of the disease, often become, in actual observation, well nigh inextricably commingled. It is this untiring interchange of features which distinguishes all the results of manifold causes operating in nature at one and the same time; and it is this which gives the inflammations of the human skin, exposed to almost every external influence, such a manifold physiognomy.

Like all other inflammations, eczema may be acute or chronic. Like all others, too, the acute may precede, and the chronic follow; or the reverse may occur, the disorder, originating in subacute or insidious forms, may become chronic, and then, as the result of fresh or more severe irritation, develop into the acutest symptoms. Thus the name

Eczema Rubrum

has been given to the red and angry form of the disease, which, because of the free exudation of serum from its surface, has been also termed *ECZEMA MADIDANS*. In this form, the intensely red and wounded integument pours out freely upon the surface a thick gummy or syrupy fluid, which, if artificially removed, leaves behind it the swollen, angry, and still discharging skin, or, being permitted to dry where it has formed, concretes into the thick, dark-colored and often blood-stained crusts already described.

Again, the scales which usually form on the eczematous skin toward

the conclusion of the process just described, may prove to be the most characteristic feature of the case from the first. Thus on the back of the neck an eczematous patch may often be seen, where the skin is infiltrated and covered with a stratum of thin, whitish scales, the latter having developed rapidly upon an erythematous surface, and continuing for a long period as a scaly disease. It is to this and similar forms that the term

Eczema Squamosum

has been applied. Again, in the regions about the hand, the movements of that organ develop often fissures or cracks in the inflamed and infiltrated integument, and to these fissured forms the term

Eczema Fissum, or Eczema Rhagadiforme,

has been applied. They are observed wherever an eczematous disorder has so impaired the elasticity and extensibility of the skin, that its necessary movements, especially about the joints, tear and stretch the torn integument. It is thus seen not only on the hands, but also on the feet and about the ankles, the resulting rhagades being, at times, the most painful of all the complications of the malady. Occurring upon the bodies and the hands of those who are compelled to come into contact with irritating substances, this form of the disease finds its severest expression.

Eczema Intertrigo

is a name applied by several authors to that form of intertrigo which, surpassing the limits of hyperæmia, results in an exudative process. Reference was made to this possibility in describing the symptoms of erythema intertrigo, in a preceding chapter. Here the symptoms are usually those of diffused redness of surfaces of the skin in close apposition, macerated by previous transudation of sweat, and weeping with the serum which oozes from the several abraded points or patches.

Eczema Verrucosum,

or the wart-like form of the malady, is occasionally observed, especially upon the lower extremities, in middle life or advanced years, as the result of long-continued disease. The integument becomes thickened and so hypertrophied as to suggest the appearance of warts closely packed together in a circumscribed patch.

Eczema Sclerosum

is a form of the disease most frequently observed upon the palmar and plantar surfaces, a condition referred to in the paragraphs relating to asteatosis. Here is presented a densely thickened inelastic integument, suggesting the condition of tanned leather, without the occurrence of any of the other lesions of eczema described above. As a consequence, the perfect extension of the digits is impaired.

Most authors agree in considering eczema as it occurs in its acute and chronic manifestations. These are, as has been seen, interchangeable conditions, the types of which possess, however, a clinical distinctness.

Acute Eczema.

In certain cases an acute attack of the disorder is ushered in by malaise, chilliness, or the recognized symptoms of the febrile state. With or without these prodromata, the affected portion of the surface becomes the seat of a burning sensation which is soon succeeded by redness and swelling. This may occur upon one or several portions of the body at the same moment of time, and the disease throughout be limited to this single area or those several spaces; or it may extend from one or all to other regions. This extension may proceed by continuous development of the disease along the surface, or an eczema of the thigh be suddenly followed by an eczema of the face, and this by an eczema of the scrotum. According to Kaposi, extension of eczema by the last-described method is due to the extraordinary sensitiveness of the skin when involved in an acute attack, in consequence of which the slightest friction, and even reflex irritation of the bloodvessels, produces a new focus of the disease at a distant point.

This is a consideration of special importance. Patients will frequently point to an acute eczema upon several portions of the body widely separated, the one from the other, and urge this as an irrefutable argument in favor of the fact that they suffer from some "poison in the blood."

The tumid and erythematous surface already described soon assumes the features of either papular or vesicular eczema, which need not be again detailed. In this manner the evolution of the disease occurs, and may continue for weeks, the patient, if unrelieved, tormented by the itching; and, if the disease be extensive, prevented from attending to his usual avocations. Acute eczema of severe grade will frequently prostrate a strong adult, confining him to his bed-chamber and often to his bed. When there is a simultaneous febrile process, the emaciation and adynamia are proportioned to its severity. Weeks and even months may elapse before recovery can be pronounced complete, subacute patches of the disease lingering here and there upon the surface, crust-hidden, scale-covered, occasionally oozing from recrudescence of symptoms. Recovery, even when complete, leaves the patient, it should never be forgotten, with a skin sensitive to irritation and more prone to a fresh attack of the disease than one long virgin of an inflammatory process.

Such is the course of an attack of acute eczema of severe grade. Needless to say that a circumscribed patch of the skin may exhibit all the features of vesicular eczema in an acute form; and, under the influence of an appropriate treatment, be satisfactorily relieved in the course of a few days. Lastly, acute eczema may be followed by chronic forms of the disease, the one passing into the stages of the other by scarcely definable gradations.

Chronic Eczema.

The symptoms and pathology of chronic eczema are largely those of the acute form of the disease. The chief differences to be noted relate to diminished intensity of the inflammatory action, or marked tendency to recurrence and persistence of the process, and a preponderance of scaling and infiltration as contrasted with the active secretion and crusting of the acute phases. It is, however, important to remember that chronic eczema is not only the frequent sequel of such acute phases, but is particularly prone to recurrent exacerbations of acute grade, during which the serous discharges, consequent crusts, and angry aspect of the affected surface, do not fail to reappear. The itching so characteristic of the malady in all its manifestations is here also a tolerably constant symptom.

Chronic eczema may involve a limited surface of the skin, or invade the entire surface of the body from the head to the feet. Rarely thus generally developed, it is more frequently observed upon circumscribed patches of the integument, as, for example, the scrotum or flexor surface of a joint, in which situation it may linger for years, or even for a lifetime, now better and now worse, or disappearing for brief periods only to return with each recurrence of its cause.

Etiology.—Eczema is a disease of both sexes and of all ages; and is, moreover, neither contagious nor inherited. The study of its etiology is thus to a degree simplified.

In many cases no cause of eczema can be discovered, beyond those which operate exclusively within the skin-organ, and are proper to itself. These are necessarily obscure, and will remain so until we are in possession of far more knowledge as to the complex and inscrutably delicate processes by which innervation, nutrition, and new formation of the living matter of the skin, are both conserved and impaired. The autonomy of the integument must be conceded to the extent recognized in other organs of the body. There are diseases of the liver which are neither referred to the blood, the nerves, nor the action of poisons. There are diseases of the heart which can be induced by neither rheumatism nor syphilis. When the etiology of the disorders of all the viscera is perfected, that of the skin displaying the lesions of eczema will be assuredly more distinct.

These remarks are justified by clinical facts. Eczematous affections occur in the persons of individuals who are in every respect superb examples of good health, where the most thorough and careful examination fails to reveal for the disorder either an external or internal cause. Eczema occurs also in persons who are affected with every form of bodily ailment; those suffering from acute and chronic disorders of every viscus and system of the body; and even those affected with other disorders of the skin. This is only what a study of established facts would suggest, having in view the probable proportion of eczematous attacks in every thousand individuals. Such coincidences would, however, scarcely furnish a satisfactory etiological basis for the disease, unless a certain degree of constancy between

eczema and these disorders could be established. Thus eczema is often seen in patients affected with rheumatism, gout, dyspepsia, malaria, obstinate constipation, anæmia, scrofula, and pulmonary disorders, a list of affections exhibiting surely very wide pathological differences. Yet he would prove to be a physician of exceedingly limited experience who could not select from patients under his own observation, twenty individuals affected with any one of the diseases named, no single person of the entire number having ever exhibited symptoms of eczema. If figures alone were to decide the question, these, and a larger list of maladies which have been named in similar connection, would be excluded in the study of the etiology of the disease.

As predisposing causes, those operating by inducing systemic debility, many if not all the diseases named above, may be effective. In this way, chlorosis, albuminuria, tuberculosis, struma, gout, rheumatism, uterine disease, dyspepsia, hepatic disease, constipation, and other gastro-intestinal disorders may lay the foundation for a persistent eczematous attack. In a similar way it is possible that a predisposition to this disease may be inherited, but, as distinguished from all the diseases known to be transmitted by heredity, it may be asserted that no child was ever born into the world with an eczema.

Eczema seems, in exceptional cases, to bear some relation to spasmodic asthma, sometimes coexisting with that disease in one person, or its attacks alternating quite regularly with the asthmatic paroxysms. This may be due to the exquisite sensitiveness of the skin, mucous membranes, and nervous system exhibited in some patients.

The so-called internal causes of eczema must be, for reasons given above, considered for the most part as either coincidences or conditions which favor the development of diseases in general, eczema not excepted. By interference either with innervation, nutrition, development, excretion, or the performance of the important functions of the body, as well as by reflex irritation of the surface, they operate by inviting, aggravating, or prolonging an eczematous attack. Among these may be named: not merely the diseases enumerated above, but also as physiological states, pregnancy, lactation, and dentition; as associated with the habits of life, occupations necessitating inordinate fatigue of body or mind, especially with the exclusion of sunlight; and lastly, as originating in the irritative action upon the mucous surfaces, of substances foreign to the body, dietary and medicinal articles capable of exciting cutaneous rashes, intestinal parasites, and instruments inserted and fluid injected into the mucous canals, as, for example, the male urethra.

This much premised, it should be added that every phase of eczema can be artificially produced upon the surface of the skin by the action of external irritants. Several authors, notably those of French nationality, take exception to this view, claiming that the induced disease in such instances is an artificial dermatitis, but they fail to point out the distinctive objective differences between such dermatitis and eczema. They content themselves with observing the

subsequent evolution of the malady, and pronounce that to be an eczema which fails to respond promptly to treatment; and that, a dermatitis which is capable of speedy relief. The climax of such absurdity is reached when they are shown obstinate cases of eczema of artificial origin, and the response is, that the induced dermatitis gave rise to an eczema in a predisposed subject.

One step further and we are in position to estimate the approximate value of the etiological factors in eczema. The large majority of all generally recognized and externally operating causes of the complaint, fail to have such an effect in the mass of individuals. Whether any one of them be necessarily followed by the disease is open to some question. Even the poison ivy, a fertile source of the disorder in susceptible individuals, will fail to influence others. The late and eminent Professor Boeck, of Christiania, when he last visited America rubbed the tender leaves of this plant over his hands and face in repeated efforts to produce the disease in his own person, and utterly failed of the desired end.

Respecting the numerous agencies operating thus externally and capable of producing the disease under consideration, it is to be remarked that they can all be referred to either: solar light and heat; contact with foreign bodies in various vaporous, fluid, or solid states; toxic agencies of a widely differing nature; traumatisms in varying degrees; and the action of parasites. Many of these coöperate; some include others; and some become effective by aggravating a disease which others have engendered. The reader is referred to the chapter on general etiology for fuller consideration of this subject. It will be sufficient to note here that acids, alkalies, antimonial and mercurial compounds, mustard, sulphur, castor oil, capsicum, arnica, turpentine, chloroform, ether, alcohol, and a long list of other medicaments are capable of producing eczema when applied to the skin externally. The same is true of articles manipulated in many of the trades—those, for example, handled by the grocer, the baker, the confectioner, the seamstress, the ink-manufacturer, the mason, the cook, the gardener, the laundress, the painter, the dyer, the printer, the tobacconist, and the chemist. Then, too, the eczema of the person exposed to intense cold, or intense solar light and heat, aided by reflection from the water, or even by excessive artificial heat, as the fire of a furnace, illustrates the action of other causes named. Pressure and friction-effects are exhibited in the eczema produced by the contacts with gaiters, cuffs, trusses, saddles, crutches, and corsets.

Scratching is a fruitful cause of eczema when the skin is affected with pruritus as a distinct disease, or as a symptom of other cutaneous disorders. Thus it is efficient in urticaria, scabies, and the prurigo of Hebra; in the skin bitten by lice, insects, bed-bugs, and fleas (which even without such interference are capable in many cases of inducing the disorder); and in the lower extremities, where the skin is distended by varicose veins.

Water is capable of exercising an injurious effect upon the skin to the extent of producing an eczema, whether it proceeds from the

sudoriparous glands in an excessive exudation of sweat which is not duly removed by ablution, or be applied externally as a fluid in excessively cold or hot temperatures, or in the vapors of the popular Turkish and Russian baths, or yet again be rendered irritating by its saline or other constituents.

The external sources of eczematous trouble named above should be regarded simply as suggestive illustrations. It should be borne in mind that every contact with the external world, sufficiently severe or prolonged to awaken the resentment of the healthy skin, may be followed by the protest of the latter in the shape of an eczema; and the same may be true when even the most trivial external accidents occur to the sensitive skin of certain individuals particularly prone to the disease.

Pathology.—The pathological changes in eczema are those of inflammation of the skin, varying somewhat with the acuteness or chronicity of the process, and the character and career of the exudate furnished in each expression of the disease. In all cases there is, first, a circumscribed or diffused hyperæmia of the affected part. This results from a series of more or less rhythmical and alternate dilatations and contractions of the vascular capillaries, the apogee of which is persistent vascular distention, blood-stasis, and the condition generally recognized as engorgement of the affected parts. This engorgement becomes visible to the eye in various shades of increased redness. Then occurs an exudation, by which a material in various degrees of fluid or solid consistency is added to the tissues. This process is also coarsely appreciable, either by the free ooze of serum from the surface, or by the imprisonment of such exuded fluid in the chambers of the vesicles which it produces, or by an increased thickening of the various constituents of the skin, perceptible when these are pinched up between the finger and thumb, or, lastly, by the appearance of various solid or semi-solid projections concerning the skin proper, or, secondarily, its glandular appendages, which visibly spring from the involved area. Thus are explained the various erythematous, vesicular, pustular, and papular manifestations of eczema.

A history of the many doctrines which have been held regarding the part played in these phenomena by the bloodvessels, the nerves, and the tissues would simply exhibit the several steps which have been taken in arriving at the facts now demonstrable. The researches of Heitzmann serve to throw light upon this inflammatory process in the skin in a highly satisfactory way.

As to the part played by the epithelium, Heitzmann¹ shows that the initial step of the inflammation is declared by an increase of the living matter, both within and between the protoplasmic bodies; the former produces a coarse granulation of the epithelia due to increase of living matter. This increase is evidently due to augmented afflux of nutritive material in the stage of hyperæmia. It is declared at

¹ Transactions Amer. Derm. Association, Fourth Annual Meeting

the points of intersection of the protoplasmic network (the formerly so-called granules) by their enlargement, and by the shining and solid condition of that part of the network called the nucleus. The increase of living matter between the protoplasmic bodies is declared in a thickening of the threads traversing the cement-substance. Every particle of the living matter, either within or between the epithelia, is capable of producing a new formation of epithelial elements. Thus is explained the part played by the epithelium in the thickening of the skin, the production of scales in squamous eczema, etc.

FIG. 89.



Chronic eczema—vertical section of the skin of the forearm. *a*, epidermis; *b*, thickened rete; *c*, hyper-pigmented layer of rete; *d*, enlarged papillæ; *e*, atrophied sebaceous gland; *f*, atrophied hair-follicle; *g*, infiltrated corium. (After KAPOSI.)

In connective tissue, the first manifestation of the inflammatory process is the dissolution of the basis-substance, and reappearance of the protoplasmic condition; by this process, and the new formation of medullary elements which may start from any particle of living matter, the inflammatory infiltration is established. The sum total of the inflammatory elements which remain united with each other by means of delicate offshoots represents an embryonal or medullary tissue. In the case of erythematous eczema, the new formation of medullary elements is scanty, and resolution is accomplished by reformation of the basis-substance.

In papular eczema the papillæ of the skin are enlarged in all

diameters, partly owing to a dilatation and enlargement of their capillary bloodvessels, and partly to the peculiar connective-tissue changes already described. Plastic formative inflammation may be accompanied by the accumulation of a larger amount of serous or albuminous exudation in the epithelial layer as in vesicular eczema.

Suppuration in the epithelial layer of the rete mucosum is produced by the accumulation of an albuminous or fibrinous exudate, in consequence of which a number of epithelia are destroyed, and by a new formation of pus corpuscles from the living matter of the epithelial elements themselves. Epithelial suppuration of this sort is not followed by a cicatrix. This is the pathology of eczema pustulosum and eczema madidans.

The elevation of the temperature in the inflamed skin is somewhat proportioned to the rapidity of the process. In acute eczema, such elevation may exceed 105.5° F. (41° C.), while in chronic eczema it can scarcely be appreciated.

The fluid exuded in eczema, whether taking part in tumefaction of any portion of the skin, as in vesiculation, or in a free discharge from the surface, is always identical. It is a yellowish-white, sticky and syrupy liquid, feebly alkaline in its reaction, depositing albumen in abundance when treated by heat and nitric acid, and exhibiting the characteristic features of the serum of the blood under the microscope. Exposed to the air, it desiccates in light yellowish to brownish, friable crusts, which resemble honey or gum.

Increase in the pigment particles distributed to the epithelia of the rete is characteristic of the chronic forms of eczema, and more especially of those where the circulation is somewhat impeded by the influence of gravity, as, for example, in the lower extremities. This is true, however, of all diseases accompanied by an augmented afflux of blood to any part of the body, as, for example, over the surfaces of joints to which for many years stimulating embrocations have been applied.

Diagnosis.—Eczema is such a protean disease in its manifestations, and is, moreover, of such frequent occurrence, that it is necessary to establish a differential diagnosis between it and a large number of other cutaneous disorders. The more important of these are named below in alphabetical order for convenience of reference, the distinctive differences of each being briefly appended. It must be remembered, however, that the identity and characteristics of eczema are made clear only after a close study of all its features; and that is the surest basis for an accurate diagnosis in every case.

ACNE.—Acne occurs chiefly on the face, neck, and back of the trunk, and its pustular forms might be mistaken for eczema of the same localities. But pustular acne is usually accompanied by a deeper-seated infiltration than the similar lesions of eczema; and this infiltration is also generally limited to the sebaceous glands or periglandular tissues. In eczema the itching is often severe, while in acne the subjective sensations are those of heat or burning; come-

done intermingled with the pustules of acne will aid in distinguishing the two.

Erythematous eczema of the face is to be distinguished from ACNE ROSACEA by its more generalized infiltration, its production of itching, and its greater diffusion over the face; while acne rosacea is more often limited to the cheeks, nose, brow, and the regions adjacent to these parts. The patch of erythematous eczema is "hot;" that of acne rosacea "cold" to the touch. The former is seen in infancy; the latter is rare in that period of life. Acne rosacea is also in many cases readily distinguished by the development of visible bloodvessels in the skin of the cheeks or nasal region. Lastly, in erythematous eczema, the lids are apt to suffer, while in acne rosacea this is the exception. In severe forms of acne the sub-epidermic pus formation and the resulting scar will prove significant.

DERMATITIS.—Dermatitis, of artificial origin, is to be distinguished from idiopathic eczema rather by its history than by special differences in the appearance or evolution of lesions. In many cases the two affections are indistinguishable. A history of traumatism or of the external application of irritant or toxic articles will often serve to distinguish the two. Dermatitis of artificial production is usually sudden in its onset, the date of which will nearly correspond with the time of the operation of the exciting cause. The subsidence of the symptoms after the withdrawal of the cause will also point to the nature of the affection. Eczema is also much more capricious in its distribution and career.

ERYSIPELAS.—Erysipelas is generally accompanied by febrile symptoms, and in many cases by bullæ. The affected surface is reddened, much more swollen than in eczema, and exhibits besides a characteristic shining appearance, which is always absent in erythematous eczema. The line of demarcation between the affected and unaffected portions of the skin is usually distinctly defined in erysipelas, ill defined in eczema. Erysipelas spreads from one point to another with a rapidity which is never noticed in eczema, the latter disease, moreover, exhibiting under a glass its minute papules or vesicles. In eczema also, when occurring upon the face in the erythematous form, the scalp is usually spared, while erysipelas tends to invade the scalp and the regions covered by the beard.

ERYTHEMA.—Eczema is to be distinguished from the forms of erythema which are due to hyperæmia only, by the presence of an inflammatory process. The erythema simplex which advances to exudation, at once transgresses the artificial line of distinction between the purely congestive and purely exudative disorders. It must therefore be remembered that many eczemas begin as erythemata, and that, clinically, the latter may represent but a stage in the disease process. The discharge in erythema intertrigo results from imprisoned or chemically altered sweat, and will not stiffen linen, as does the serous

exudation of vesicular eczema, for example. Erythema multiforme, an affection really on the border-line between the two pathological classes here sought to be distinguished, will be recognized by the absence of severe itching, and the recurrence of the disorder at certain special seasons of the year; while *E. papulosum*, *E. tuberosum*, and *E. nodosum*, display solid elevations of the surface much exceeding in size the minute lesions of papular eczema.

HERPES.—Eczema is, in the minds of many, so associated with the occurrence of a vesicle, that other vesicular disorders are apt to be confounded with it. But in herpes febrilis the vesicles are usually grouped about the mucous outlets of the body, and when actually under observation exceed in size the minute and transitory lesions of vesicular eczema. In herpes zoster with the limitation of the eruption to one side of the body, there is also a history of precedent neuralgic pain. The subjective sensation is a decided burning rather than itching, and there is a possibility of the subsequent production of scars.

IMPETIGO AND IMPETIGO CONTAGIOSA.—In these forms of disease the pustular lesions are usually isolated, do not spring from an infiltrated surface where other lesions may be visible, and are unaccompanied by the intense pruritus which is characteristic of eczema. The pustules, moreover, are larger, and the resulting crusts, as a rule, bulkier and darker colored than in eczema. Again, in pustular eczema the cutaneous affection usually occurs in one or more patches, while in impetigo a dozen or more isolated pustules may be irregularly scattered upon the entire surface of the body. In the contagious form of impetigo, there may be a history of the extension of the disease from one member of a family to another.

LICHEN PLANUS.—In this disorder the papules never become vesicular as in eczema; while those of the last-named disease never assume in any stage the peculiar sepia-tinted hue of the similar lesions of lichen planus. The latter, moreover, are often umbilicated, are chronic in development, frequently symmetrical in disposition, and are scaly at the flattened summit.

LICHEN RUBER.—Here the dull red, non-excoriated papules, covered with minute scales, unattended by severe itching, could scarcely be mistaken for the vivid, angry, and scratched papules of eczema, which, moreover, are often accompanied by secretion from the surface. When the scales covering patches of coalesced papules in lichen ruber are removed, the orifices of dilated hair-follicles become visible. This is never true of papular eczema. But the important symptoms of a grave disease in lichen ruber, such as marasmus and the indications of a fatal termination, will not fail to attract attention.

LUPUS ERYTHEMATOSUS.—Lupus erythematosus greatly resembles certain forms of squamous eczema. The greater chronicity of lupus; the firm attachment of the scales; the symmetrical distribution of certain patches upon the face; the association of the disease with the sebaceous glands; the definite border of each involved area; and, above all, the discovery of the cicatrix where it has existed, will sufficiently distinguish the disorder. In eczema there is usually itching, often vesiculation, more rapid extension of the borders of a single patch, and scales much more loosely attached, than in erythematous lupus, which are never provided as in the latter disease with stalactiform plugs on the inferior surface.

LUPUS VULGARIS.—Lupus vulgaris is readily distinguished from eczema by its more chronic career, its larger papules and tubercles of dark reddish-brown hue, and by every one of its destructive processes, none of which is ever recognized in eczema.

PEDICULOSIS.—As eczema is often induced by lice upon the head, pubes, or clothing, it is always necessary to exclude the operation of such causes both for diagnostic and therapeutic purposes. Eczema, limited to the pubic region or existing there, and elsewhere only about the axillæ, should suggest careful examination of the skin and hairs for the discovery of the crab louse. As for the pediculus corporis, it should be the rule of the physician, invariable and never to be forgotten (whatever the social position or refinement of his patient), to search for evidence of the parasite upon the under surface of the clothing worn next to the skin, at the instant of its removal and while the patient supposes him to be busied with the inspection of the cutaneous lesions. The excoriations produced by scratching wounds inflicted by body lice are usually out of all proportion to the amount of skin disease present; and this is the most significant of all symptoms next to the discovery of the *corpus delicti*. Head lice may precede or follow eczema of the scalp, but either they or their ova (nits), clinging in numbers to the hairs, will be visible to him who looks carefully for them.

PEMPHIGUS AND PITYRIASIS RUBRA.—The large isolated bullæ of pemphigus vulgaris are never seen in eczema. In pemphigus foliaceus the lesions are succeeded by the formation of pastry-like crusts, scaly exudation, superficial soreness, and the eventual production of an extensive and usually fatal exfoliative dermatitis. The marasmus becomes then rapidly conspicuous, while, as a rule, itching and infiltration are not present. The disease known as pityriasis rubra is equally rare and fatal; and, though unattended with the production of bullæ, is characterized by an equally abundant epidermic exfoliation, itching and infiltration being either entirely wanting or of insignificance in comparison with the other symptoms present. The scales too are papery, large, and thin; there is no vesiculation and moisture, and little, if any, infiltration of the skin. The latter is,

moreover, of a uniformly reddish hue. Both pemphigus foliaceus and pityriasis rubra are particularly liable to be complicated with chills or uncontrollable diarrhoea. Without question, many of the reported cases of so-called pityriasis rubra are instances of squamous eczema. Here the localization of the disease to one or more patches upon the body, the severe itching, and the distinct infiltration of the patch, will point to the eczematous character of the disease. Observation of such patients will finally convince the observer, in many cases, that there is occasional weeping from the surface.

PRURIGO AND PRURITUS.—In the prurigo of Hebra, a disease exceedingly rare in this country, there are infiltration, intense itching, and numerous minute papules. But the disease usually occurs within a year or two after birth, and lasts for a lifetime, extending generally over the greater part of the body, sparing only the palms and soles (which eczema does not), and is accompanied by inguinal adenopathy. In pruritus, often confounded with prurigo, there is itching without disease of the skin save that induced by the nails to relieve the sensation. Hence, pruritus without scratching will not reveal a cutaneous disease; while the same disorder with scratching will exhibit either excoriations, or an eczema induced by the attacks made upon the skin. The last is, however, rarely noted. The distinction will be clear when it is remembered, first, that pruritus is usually of a paroxysmal character, worse regularly at certain hours or seasons; second, that pruritus not originating in a cutaneous lesion, but indirectly producing the latter by the medium of the nails, never exhibits as much cutaneous excoriation as the skin bitten by lice or attacked with eczema. The impressive symptoms here are always the disproportion between the complaint of the patient and the visible symptoms, and the vast preponderance of all lesions, when the skin has been scratched, in those regions of the body most accessible to the hands, such as the anterior faces of the limbs, the genital region, lower belly, etc.

PSORIASIS.—Psoriasis and eczema in typical forms are distinct. Variations from type in the direction from one to the other furnish many obscure cures.

The following are the chief diagnostic points in psoriasis: Sharp definition of contour of patch; abundance and lustrous hue of scales; absence of moisture; vascularity of tissue beneath the scales; sites of election on posterior aspect of trunk and extensor surfaces of limbs; chronicity in course; uniformity of lesions; and usually absence of itching. In eczema: there is an ill-defined contour; usually scanty scales not having a nacreous hue; a preference for the flexor surfaces of the extremities, though the disease may occur in any portion of the body; generally, at some period in its course, a history of moisture; polymorphism, as regards lesions; and a marked intensity of subjective sensations. Upon the scalp, psoriasis is particularly apt to extend beyond the hairy border in a fillet stretching

across the upper portion of the forehead and thence irregularly down in front of the ears ; while eczema of the face, when the scalp is also invaded, departs boldly from the hairy parts to the lower limits of the forehead, the lips, nose, cheeks, or chin, regions which are relatively spared by psoriasis. Finally, the two diseases, in doubtful cases, will generally be distinguished by carefully searching the entire surface of the body, upon some part of which, in psoriasis, there will usually be discovered a tell-tale patch of typical appearance.

SCABIES.—Scabies is really an artificial eczema induced by the incursions of the *acarus scabiei*, and its lesions are thus those of eczema. In scabies, however, the pruritus is intense and the several papules, vesicles (these much less closely set than in eczema), and pustules are more likely to be coincident than successive, exhibiting thus the multiformity characteristic of the disorder when produced by the parasite. The discovery of the presence of the latter, especially if there be a history of contagion and the localization of the disease in its sites of preference, will at once determine the diagnosis. Scabies never attacks the scalp. Its sites of preference are, in both sexes, the fingers, hands, wrists, and axillæ; in women, the breast and the nipple; in men, the penis; and, in children, the buttocks. The presence of the acarian furrow, if the disease has existed for some time, and the appearance of minute blackish dots or points upon or about the lesions, usually suffice to establish the real nature of the disease.

SCARLATINA.—This disease could only be confounded with certain of the varieties of eczema exhibiting an erythematous type. In scarlet fever, however, the elevation of temperature, the appearance of the tongue and fauces, and frequently the history of contagion, serve to distinguish the disease. The peculiar “boiled lobster” appearance of the skin, and its symmetrical distribution over the surface of the body, with gradual extension from the head and trunk to the lower extremities, are never seen in eczema. The finger-nail drawn across the skin of the patient affected with scarlet fever is usually followed by the occurrence of a whitish line corresponding with the impression made with the nail, which is highly characteristic of the eruption. Lastly, a generalized eruption of eczema will never disappear with the rapidity of the scarlatina rash.

SEBORRHŒA.—Seborrhœa and eczema may coexist, either disease preceding the other. Typical forms of each are readily distinguished. In eczema there is infiltration and much consequent itching; in seborrhœa, neither. The scales of seborrhœa are more voluminous, greasy, freely shed from the surface, and seated usually upon an integument of scarcely altered hue. In eczema the scales are dry, scanty, and more firmly attached to a usually hyperæmic base. Seborrhœa of the hairy parts is generally symmetrically

diffused; eczema, though occurring with ill-defined contour, is rarely as symmetrical, usually more acute, and seldom followed by alopecia. Upon the non-hairy portions of the body the same distinctions can be to a great extent observed. The crusts of eczema removed from the face generally disclose beneath them an oozing surface, while the under surface of these crusts never exhibits the stalactite-like prolongations which pass from the under surface of the seborrhœic crusts into the patulous orifices of the excretory ducts of the sebaceous glands.

SYCOISIS.—Both the parasitic and the non-parasitic forms of sycosis are limited to the region of the beard, while eczema of the hairy portions of the face will usually be found to affect other regions. In eczema the itching is severe, the exudation spreads beyond the limits of the beard, and the discharge is characteristic, while in both forms of sycosis there is no oozing, and the subjective symptoms are trivial. The discovery of the parasite in the root or shaft of the hair will at once distinguish the parasitic forms of the disease. In sycosis, each pustule is perforated by a hair. Eczema limited to the region of the beard is even rarer than the two varieties of sycosis. The circumscribed indurations and tuberculations of the affection produced by the trichophyton, as well as the loosening of the hairs in their follicles, constitute further distinctive differences.

SYPHILIS.—There can be no question that several syphilitic eruptions resemble certain forms of eczema. In the eruptions due to syphilis, however, there is usually a history of infection; of involvement of the glands and mucous surfaces; of ulceration and cicatrices in advanced periods; and, especially in the case of infants with an eczema-like eruption, a history of snuffles. It should always be remembered that the intense itching of eczema is characteristic of no one of the syphilides; and that the latter are remarkable for their tendency to occur with a circular or partially circular outline, and to be covered with bulky crusts of an offensive odor. A point particularly worthy of note is suggested in the diagnosis of chronic eczematous affections. A syphilitic eruption limited for an equal period of time to one locality will often ulcerate or exhibit evidences of repair by scar tissue, no such lesions occurring in eczema.

Syphilis of the palms and soles exhibits very distinctly limited outlines in the usually circular, circumscribed and deeply infiltrated patches present, which are often symmetrical in development, or at least situated on both sides of the body, even if more fully developed upon one limb. Syphilitic pustules upon the scalp usually rise above well-defined ulcers. Syphilitic eruptions encircling the mouth in children are less angry-looking and formidable than severe eczema of the same region, being often made up of flattened papules, moist or scaling, grouped in circles about the lips, with mucous patches at the angles.

TINEA CIRCINATA.—In ringworm there should be a history of contagion, microscopical discovery of the vegetable parasite, distinct contour of all separate patches, absence of marked subjective sensations and of discharge. These are not symptoms of eczema. In ringworm of the scalp the hairs are usually either brittle or actually broken at a short distance from the scalp; the scales are fine, dirty-white, and not torn from the surface by the finger-nails. In eczema the hairs are unaffected, and their extraction from the follicles is accompanied by pain.

In ringworm of the body the patches are distinctly circular; more scaly or papular at periphery than centre; and, moreover, yield with exceeding promptness to the action of a parasiticide. Occurring about the thighs and ano-genital region, the disease may be complicated by eczema, but the characteristic “festooning” of the advancing border of the patch downward along the thigh, or upward over the pubes, will suggest a microscopical examination of the scales scraped from the surface.

TINEA FAVOSA.—The cup-shaped, friable, yellowish crusts of favus in the scalp might be mistaken for the crusts of eczema of the same part; but here the exudation is slight; there are no pustules of eczema, and hence no history of discharge. The odor, moreover, is characteristic. In case of uncertainty the microscope would indicate the parasitic nature of the disorder.

TINEA VERSICOLOR.—In this disease, also, the microscope will reveal, beneath the epidermal plates, the spores and filaments of the vegetation which produces the ailment. From eczema it is easily distinguished by the absence of infiltration and of any history of inflammation, by the very slight subjective sensation it produces; by its peculiar fawn to chocolate-colored, slightly yellowish patches, with superficial furfuraceous desquamation, limited often to the anterior surface of the trunk, and readily removed by the action of a parasiticide.

Treatment.—It is proposed to describe here the treatment of eczema in general, reserving the consideration of the treatment of the forms occurring in particular localities of the body to the pages which follow, and which are allotted especially to such local manifestations of the disease.

In acute eczema, as well as in many of the chronic forms of the disease, the first and most important requisite is that which is the simplest, and, perhaps, for that reason most commonly overlooked. This requisite is **THE EXCLUSION OF ALL SOURCES OF IRRITATION.**

This completely secured, a large number of cases of the disease will proceed to a prompt recovery without any other treatment whatever. Failing this, acute become chronic phases of the disease; or there is a history of exacerbation, recurrence, or development of the disorder in new and perhaps distant portions of the body, from

reflex irritation or augmentation of the sensitiveness of the skin to other sources of mischief.

The exclusion of all sources of irritation necessitates, first, the withholding of all harmful internal medicaments. The number of patients presenting themselves for treatment of this disease, both in dispensaries, hospitals, and in private practice, who have aggravated their eczema by the medicaments they have swallowed, is incredibly large. Men and women, infants and adults, those who have been under the charge of physicians, and those who have purchased their drugs of the apothecary at the suggestion of the latter or of their friends, exhibit patches of acute or chronic eczema, intensely aggravated by the injudicious use of arsenic, iodide of potassium, bromide of potassium, Donovan's solution, and other harmful preparations contained in the various "blood-purifying" remedies sold in the shops. The practitioner whose patient comes to him after making trial of any such remedies, is strongly urged to set aside carefully the operation of such mischievous agents, and to watch the eruption carefully, while their effect is vanishing. The result is often marvellous.

The exclusion of all sources of irritation necessitates, in the second place, the avoidance of all injurious external contacts. Only gross ignorance or carelessness will overlook the fact that the inflamed skin, like the inflamed bone or the inflamed bladder, calls imperatively for rest. The prevalent idea is, however, that the patient with an inflamed joint retires to his couch or bed, while the patient with an eczema, unless his disease is so formidable as to necessitate temporary withdrawal from the pursuits of business or pleasure, belongs always to the peripatetic class. He consults a physician, swallows some medicine, anoints his eczematous skin with a salve, and returns to the vocation where his complaint was begotten, just as the man with a gonorrhœa will occasionally solace himself by embracing the source of his affliction. The baker goes to his baking; the seamstress still pushes her weary needle through the dyed fabrics which first injured her hands; the man with an eczema of the thigh walks the street with his trowser leg rubbing the affected surface; the nursing mother, with an eczema of the infra-mammary region, still suffers the milk, chemically altered in the heat of the summer, to flow over the tender surface of the breast; or, in the case of her infant affected with eczema, stuffs the folds of a coarse diaper, half laundered or yet covered with the dejections from the bowels, between its thighs and over the anal region.

Next is involved the exclusion of all topical irritants in the hands of either physician or patient, designed to relieve the disorder but having a precisely opposite effect. The number and variety of these articles are far from being commonly appreciated. Some are useful in advanced stages of the disorder, and harmful in its earlier periods. These are generally ordered by persons with a limited experience in diseases of the skin, and include a long list of stimulating and astringent ointments. Some are employed in sheer ignorance of their effects, as, for example, crude petroleum, strong acids and alkalies,

nitrate of silver, turpentine, and concentrated solutions of corrosive sublimate, intended to "burn out" the disease.

Lastly, the exclusion of all sources of irritation necessitates saving the involved surface from the excoriations and other traumatisms produced by scratching, rubbing, and excessive washing of the eczematous skin. In the case of adults some restraint is here needed; in the care of infants, this restraint may need to be enforced.

This is the only proper treatment of eczema. That which is conducted without regard to this, is unworthy of the name. The methods of treatment about to be described in detail, are to be regarded as entirely auxiliary to the measures and precautions suggested above. If the latter could be perfectly secured in every case, no other treatment would be required. If the patient protest that he must continue his vocation; the hands of the sugar-baker returning to their accustomed manipulations; the feet of the busy pedestrian to the frictions incident to his daily locomotion, then let both physician and patient distinctly understand the facts of the case. The former advises the speediest method of relief; and the latter elects a slower and more uncertain course. In doing this he should be made to understand that the responsibility is, to that extent, to be borne by himself. What competent surgeon consents to be responsible for that fracture in which the extremities of the bone are daily subjected to movement on the part of the patient?

The great importance of rest and freedom from irritation of all sorts in eczema is well illustrated by two classes of cases. There is, first, the newly born infant, whose sensitive skin responds early to its first harsh acquaintance with the outer world, by an explosion of eczema. But it is a fact of singular importance that no child is born into the world eczematous. If the nervous system were responsible for eczema, such a result might occur, for that system is not only capable in intra-uterine life of producing club-foot and other deformities, but also of influencing skin disorders. The author has reported a case of pigmentary moles at birth, and other observers have described similar facts where the lesions were distributed exactly in the situation of herpes zoster of the trunk, along the lines of the intercostal nerves. If the blood were responsible for eczema, the fœtus surely might display its lesions, as it does those of syphilis. Animal poisons, as those of variola and scarlatina, do not spare the unborn child. Nor is it exempt from certain diseases of the integument which are generally regarded as due solely to tissue changes, since newborn infants are occasionally seen affected with ichthyosis or sclerema neonatorum.

Why is the tender skin of the fœtus saved from every form of eczema, and the tender skin of the infant accessible to all by such various approaches? Will it be responded that the child has begun to respire and digest for itself; that it has become suddenly strumous, dartrous, rheumatic, arthritic, gouty, or herpetic; that its standard of health is impaired; that it is suffering from assimilative, nutritive or nervous debility, or from any one of the other numberless perturba-

tions to which eczema has been ascribed? For him who can divest himself of all prejudice, there can be but a single answer to the question. The difference between the child unborn and the child born is, as regards eczema, a difference solely of skin protection and skin exposure. The former enjoys what Dr. White has aptly termed a "prolonged, placid, subaqueous life." Anointed with unguent and immersed in its water-bath of grateful temperature, its skin cannot be fretted to produce an eczema. The latter, abruptly and often rudely brought into contact with the outer world, may speedily exhibit the most formidable symptoms of the disease.

The second class of cases to which reference is made, exhibit the reverse of this picture, and are best observed in hospital practice. Attacked with such severe symptoms of the disease as to justify admission to these charities, eczematous patients, usually impoverished in their resources and often injured by exposure during severe bodily toil, rarely fail to improve greatly during the course of a few days, when no treatment of an active sort has been adopted. In the larger number of cases, while waiting to study the evolution of the disease, one is limited to the observation of its involution. The mere rest in bed in a recumbent position, with a proper regulation of the diet and exclusion of all sources of irritation, has here been sufficient to secure relief.

If any apology be needed for the space devoted to this part of an exceedingly interesting subject, it must be based upon the great frequency of the disease; the wide diffusion of erroneous doctrines respecting its nature and the method of its management; and the mischief resulting from the too common aggravation of the disease in its earliest manifestations.

The dietary allowed the eczematous patient should be limited to the most digestible articles of food, and should exclude those known to be capable of exciting cutaneous irritation, a list of which is given in the chapter on urticaria. A moderate use of fresh meats, cooked vegetables, and fruits may be permitted, but starchy articles in excess, hot breads and cakes, pastry, confectionery, cheese, pickles and pickled meats, cucumbers, cabbage both raw and cooked, parsnips, turnips, beans, oatmeal, cracked wheat, peas, celery, shell-fish, salted fish and meats, pork and veal should be avoided. Milk, when not the source of constipation, may be drunk. Coffee, tea, and cocoa, are in the doubtful list; as these are positively injurious to some patients, and apparently without effect in others. Tobacco should always be cut off from male patients suffering from anything like a serious eczematous attack. Alcohol in every form is contra-indicated save in such conditions as debility or previous habitual use in moderation by persons of advanced years.

Internal treatment.—In the management of acute eczema, cooling draughts are useful; and in all cases occurring in patients who are plethoric, who are constipated, or who suffer from other symptoms of imperfect excretion, aperients and cathartics are needed. Often a brisk mercurial purgative may be ordered at the outset in the form of blue

mass or the compound cathartic pill. The rhubarb and soda mixture answers well in some cases. Podophyllin, irisin, and eupatorium may be substituted for these. The saline cathartics, whether employed in medicinal formulæ, or in natural mineral waters, such as the Hathorn, Hunyadi János, or Friedrichshall, are exceedingly useful in the management of most cases. The following is a valuable combination often advised for cases where both iron and the sulphate of magnesium are indicated:

R. Magnes. sulphat.	℥ij;	64	
Acid. sulphur. dil.	f℥ij;	8	
Ferri sulph.	℥ss;		66
Sodii chlorid.	℥j;	4	
Cardamom. tinct. comp.	f℥j;	4	
Aq. dest.	ad Oss;	256	M.
Filt. Sig. A tablespoonful before breakfast in a tumblerful of cool or hot water.			

In some cases of renal derangement, the alkaline diuretics are indicated, such as the potassium acetate, carbonate, or citrate, administered with nitre, squills, caffein, or the benzoate of lithium in three to five grain (0.26-0.33) doses before meals (Piffard); and, in gouty cases, colchicum, Vichy water, etc. In patients suffering from acid dyspepsia, the liquor potassæ, sodium bicarbonate, or ammonium carbonate may be required.

Aloes and iron, or aloes and ergot are often indicated in special cases. The late Dr. Tilbury Fox employed in cases where diuretics and alkalies were both indicated, a formula of this kind:

R. Magnes. sulphat.	℥ss;	16	
Magnes. carbonat.	℥j;	4	
Colchici. tinct.	f℥ss;	2	
Menth. pip. ol.	℥ij;		2
Aq. dest.	f℥vj;	192	M.
S. Two tablespoonfuls in a wineglassful of water every three or four hours.			

Cod-liver oil is indicated in all cases of struma and tuberculosis; phosphate of lime in bronchitis; steel in anæmia and chlorosis.

In fleshy children affected with eczema capitis, calomel internally is a valuable remedy, one to two grains (0.06-0.133) of calomel, with two to three (0.13-0.26) of rhubarb rubbed up with five of calcined magnesia (0.33) may be given once in the day to an infant; or one-twentieth of a grain (0.003) of calomel rubbed up with sugar of milk, may be given three times daily, for ten or twelve days. Van Harlingen advises small doses of the unsipped syrup of rhubarb, with or without magnesia, for the constipation of infants, or from one to three drachms (4.-12.), each of powdered rhubarb and the bicarbonate of sodium in four ounces (128.) of peppermint water, of which a teaspoonful may be administered two or three times daily. Quinine, strychnia, the syrup of the iodide of iron, and the wine of iron may also be used with advantage when indicated in these little patients.

Beside the articles enumerated above may be named the following,

which, after internal administration, have been reported as efficient in the hands of various authorities: Calx sulphurata and viola tricolor (Piffard); hyposulphite of sodium, ichthyol, chrysarobin, tar (for adults, two drops of purified pix liquida mixed with one-eighth part of rectified spirit, gradually increased—Anderson); carbolic acid, sulphur, and hydrocotyle Asiatica.

If the remarks which have preceded are justified by the clinical and pathological history of eczema, it follows that there is no constitutional treatment of the disease, save that which excludes all sources of irritation, a point to which attention has been already called. Once fully persuaded of this important truth, the physician should be capable of managing the complaint without mental bias in the direction of futile experimentation with drugs.

The treatment of the patient, however, may be in one sense regarded as the treatment of his disease, though a very large number of eczematous patients are, except as regards the skin, in conditions of health. Constitutional treatment, to meet any general conditions of ill health, should be, in short, such as is made familiar to the physician in his experience as a general practitioner of medicine.

Mention has been made of but few of the disorders in the long list which may coexist with eczema. Some male patients with a gleet have an eczema of the thigh, kept up by the discharged secretion, which calls for treatment calculated in a very indirect manner to relieve also the cutaneous disorder. The same may be said of an otitis externa with a purulent discharge, and of other local and constitutional ailments which the skilled physician should be competent to recognize and treat. Be it clearly understood the while, that all such treatment will not relieve an eczema. It simply places the patient in the most favorable condition for getting rid of local trouble. If one has had the opportunity of observing a large number of eczematous patients of every social class treated by internal medication of the character approved by those who still cling to a belief in the constitutional nature of the disease, he will see that the statements here made are based upon a conscientious study of this experience, and of the results of personal experiment in the same direction. He who desires to build solidly will not lay his corner-stone upon the shifting sands, where so many have been disappointed before him.

Bearing in mind the fact that an eczema will occasionally vanish under even the worst mismanagement, the value of arsenic administered internally for its relief should be duly estimated. It is an uncertain remedy in all cutaneous diseases; it is as uncertain in eczema, and has unquestionably aggravated as many cases as it has relieved. Its value in chronic and persistent forms of the disease is attested by men of distinguished reputation; and upon such authority it may be conceded a position among the internal remedies for the malady of possible value. It is indeed not as remarkable that a few patients annually recover under its administration, as that more do not attain the same fortunate end; for it is the favorite *dernier ressort* in chronic scaling diseases of the skin with physicians of every grade of pro-

fessional proficiency; and, having in view the large percentage of eczematous cases with which they are confronted, it is a curiously suggestive fact that the position of arsenic in eczema is yet open to discussion. If arsenic, which certainly does possess an influence over the skin, cannot to-day be demonstrated to have therapeutic value in the large proportion of all cases of eczema, what can be said for the host of other drugs, too commonly employed for a similar purpose, which are inferior to arsenic in their cutaneous effects? Sunlight, fresh air, suitable clothing, and due régime as to pleasure and business—these must be, for many patients, controlled by the physician. They do not cure eczema. They may do much to aid in its management; they may do more, if neglected, to furnish sources of its aggravation.

External treatment.—The most soothing applications which can be made to the skin affected with acute eczema are, in various proportions and combinations, water, oil, dusting powders, and occasionally ointments. These will be separately considered, but two important circumstances must be remembered in their employment—first, that an article which will be grateful to the skin of one patient may prove irritating to another, the two being to all appearance similarly affected; second, that where the surface is broken, from rupture of vesicles, excoriations, abrasions, or fissures, an applied fluid should be of greater specific gravity than the serum which is exuded, since otherwise endosmosis and exosmosis will occur, and the surface in consequence become more tumid and painful.

Olive or other bland oils may be poured over the surface, applied upon folded pieces of lint, or used by inunction. Even these substances are at times, however, the sources of irritation. They are made more soothing by combination with an equal part of liquor calcis, as in the Carron oil, constituted of equal parts of linseed oil and lime-water. For the linseed oil it is frequently advantageous to substitute cod-liver oil, palm oil, oil of sweet almonds, neat's foot oil, olive oil, or lard oil, flavored very slightly with bergamot or lavender to correct the disagreeable odor. In combination with equal parts of lime-water, one of these may be gently smeared over the surface, while a piece of lint, saturated with the same preparation, is also applied. In many cases the value of this dressing is greatly enhanced by surrounding the whole with oiled silk or other impermeable tissue.

The dusting powders, described in the chapters on General Therapeutics and the Erythemata are available in many cases where the surface of the skin is, or is not, broken. These may be composed of lycopodium, magnesium, boric acid, bismuth, talc, the oxide of zinc, and camphor when an anti-pruritic effect is desired, in combination with finely powdered starch. The Anderson powder, the formula for which has been already given, is a useful combination of camphor, starch, and zinc. In their preparation it is of prime importance that they be made perfectly impalpable by sifting them carefully through silk bolting-cloth, as they are sources of irritation when they contain grain-like particles of untrituated material. The finely bolted

"Oswego gloss starch," "corn starch farina," and rice flour, sold by the grocers, either singly or in combination with the other articles named, are generally accessible, and prepared at hand. It will often be of advantage, where exercise in the day is not to be prohibited, to employ one of the oily preparations during the night, which can be removed in the morning by a weak alkaline bath containing borax or the sodic bicarbonate, while the patient employs a dusting-powder in the daytime. This can be freely dusted over the surface, as also over the soft lint in contact with the eczematous skin, the stocking, gloves, or suspensory bag being also well protected by the powder on its inner face.

Water is of value in many cases when properly applied. Excessive washing of the eczematous surface is not only disagreeable to the patient, but irritating to the inflamed skin. Hot water, applied either as a lotion, bath, fomentation, or by sponging, is frequently grateful and alleviates the itching. If employed at all, its use should be immediately followed, as soon as the part is carefully dried, by the other medicament selected for topical application, such as an oily or fatty substance, or a dusting-powder.

Cold water is of service only when it can be continuously applied, as its intermittent employment is followed by a vivid reaction in the skin capillaries, whereby the itching is greatly increased. Thus are explained many of the nocturnal exacerbations of the disease, notably those occurring soon after the patient retires to his or her bed. A cold bathing of the part before retiring has been followed by a temporary calmative effect, the blood being driven from the capillaries by the contraction of the tissues. The return of the circulating fluid in excess has then been aided by the warmth retained by the bed and the bed-clothing. The continuous application of cool or cold water requires a constant supply of the fluid from a reservoir of fixed temperature, and the exposure to the air of the part to which the dressing is applied. Thus evaporation is not checked; and what is intended to be a continuous cold dressing is not transformed into a hot fomentation.

Such fomentations are, however, frequently grateful to the patient's skin, and at times fulfil a good purpose. They are applied by dipping pieces of soft cloth in hot water, applying them neatly over the affected surface, and covering them with oiled silk, rubber cloth, or the "protective material" employed in antiseptic surgical dressings. Poultices of flaxseed, elm bark, or other bland materials operate in a similar manner, but are chiefly useful in softening crusts or other morbid concretions upon the surface. When too continuously or too frequently employed, they are productive of harm in their macerating and relaxing effect upon the skin, whereby its natural tonicity and instinct of self-repair (if such a term be permitted) are to a degree obtunded. They are hence but little used in eczema. The combined employment of water and fatty substances is an exceedingly valuable method of soothing the eczematous skin, but, with the means accessible in the private practice of many physicians, can rarely be secured. It

certainly approximates most closely the sebaceous envelope and warm-water bath of foetal life. The eczematous skin is first anointed gently with a bland unguent, such as mutton tallow, suet, cold cream, or vaseline, and is then immersed in a bath of water kept continuously at the temperature of the blood. In the case of the lower extremities this is accomplished without great difficulty. Less perfect than this is the anointing of the surface and the subsequent application of a warm fomentation, by strips of soft lint dipped in the water, superimposed with neatness, and subsequently covered with the protective gauze. Imbibition of fluids by the skin is prevented by its careful anointing; and, when immersed in the water, the pressure is both uniform and gentle.¹

Medicated water in baths and lotions plays an important part in the treatment of acute eczema. The liquor calcis with calomel, half a drachm to one drachm (2-4.), and pure glycerine or mucilage half an ounce (16.) to the pint (512.); the lead and opium wash; glycerine one drachm (4.) to liquor plumbi subacetatis four ounces (128.); carbolic acid one drachm (4.), and glycerine two drachms (8.) to one pint (512.) of camphor or lime water; a decoction of opium, made by boiling five to ten grains (0.33-0.66) of powdered opium in a pint (512.) of water, which is strained and rendered demulcent with mucilage; sulphate of zinc ten to thirty grains (0.66-2.) to the pint; dilute hydrocyanic acid two drachms (8.) to the pint of water; these and similar lotions, the ingredients of which are changed to suit the indications of each case, often serve to alleviate the itching, and in that proportion to diminish the intensity of the disease. Dr. White, of Boston, after bathing the parts for several minutes with the lotio nigra, dilute or in full strength, gently smears the surface with a small quantity of the oxide of zinc ointment, or, in winter, four scruples (5.) of powdered zinc oxide to half an ounce (16.) each of cold cream and vaseline. Dr. Taylor, of New York, has suggested the following:

R. Liq. plumbi subacetat.	℥ij;	8	
Opii tinct.	℥ij;	64	
Camphoræ tinct.	℥i;	32	
Glycerinæ	℥ij;	64	M.
Sig. To be mixed with a quart of water and applied on lint.			

To this solution, a greater astringent effect can be given by the addition of the subnitrate of bismuth, or oxide of zinc, half an ounce (16.) of either to the pint (512.) of the lotion.

Dr. Duhring, of Philadelphia, has greatly popularized the use of the fluid extract of *grindelia robusta* in the proportion of one part to four of water, as a lotion in eczema. Many patients will in this way secure relief which they cannot otherwise obtain.

¹ A convenient method of making the applications described above, is by the aid of spongiopiline. The eczematous surface is first anointed with a bland, neutral unguent, and then covered with a piece of spongiopiline, cut to the required size, sewn to a somewhat larger sheet of oiled silk or Lister protective, so that the edges may project on every side. The whole is retained in place by a flannel or muslin bandage, to which the edges of the impermeable material are attached by stitches. The spongiopiline is moistened with pure or medicated water, as desired, of a temperature nearly that of the stomach, and may be re-moistened from time to time.

Other useful lotions contain finely levigated calamine, one to two ounces (32.-64.) to the pint of rose-water, with a small quantity of glycerine, and, if the itching be severe, in addition half a drachm (2.) to one drachm (4.) of dilute hydrocyanic acid. Boric acid, one to two drachms (4.-8.) to the pint of an opiated wash; thymol, one part to one thousand; and borax or the bicarbonate of sodium in the same proportion, containing besides an equal proportion of alcohol, spirits of camphor, or chloric ether, is also available. With any of these it is proper to moisten frequently the soft lint upon which they are applied, and this after ablution with hot, pure or slightly medicated, water, for the purpose of relieving the itching.

Van Harlingen uses also poultices made of crumbs of bread mixed with ice-cold lead water, where the skin is œdematous.

From what has preceded, it will be clear that the chief end in the treatment of an acute eczema, is the relief of the subjective sensation of itching, and the exclusion of all irritants, the two being practically one. That which is not grateful to the skin of a patient thus complaining, had better be, for the time at least, abandoned. So great is the difference between different patients as to the toleration by the skin of various topical remedies, that it is well, as a rule, at the time of the first consultation, to order an alternative treatment, the one to be immediately substituted for the other, if such necessity arise. Especially is this true in cases where the epidermis is wounded, and where the patient can sometimes with comfort to himself exchange a dusting powder for a lead wash, or a weak carbolized oil and lime-water lotion, while his eczema is tormenting him in different degrees at different hours of the day.

The necessity for this relief is so imperious that at times it overshadows all other symptoms of the disease. He who has never studied the case of a man or woman possessed with a furious impulse to relieve an intense eczematous pruritus, has not yet completed an education in medicine. The fury, for such it really is, has been likened to the sexual orgasm, with which it is undoubtedly allied, as the two are not rarely coincident when there is severe anal or genital itching. The features of the patient are drawn; he is but half conscious of his ejaculations and surroundings; with his nails or other object which he employs he attacks the too vulnerable skin with an incalculable savagery. In these exaggerated paroxysms, nothing but blood will suffice for his relief. Not till the torn and wounded surface oozes with red drops at every point does he emit the sighs which indicate that his desire is satisfied. Men and women forcibly withheld from doing themselves this severe damage, will at times, exhibit muscular spasm, facial expression, and movements of the body, scarcely distinguishable from the symptoms of an epileptic seizure. This brief outline of a picture familiar to those who have had experience of exaggerated cases, will serve to enforce the need of the utmost care in selecting a topical remedy in acute eczema, the greatest gentleness in its application, and the nicest provision for the special needs of each individual patient.

In proportion as the disease progresses to a subacute or chronic stage, the various topical medicaments employed may be changed in character so as to produce an astringent or stimulating effect upon the part. The utmost skill and prudence, however, are needed at this juncture; and when uncertain as to the proper course, it is well to continue the dusting powder, oleated lotion of lime-water, or whatever other article may be externally employed. For it is at this time that the disorder is readily awakened to renewed activity, a turn of affairs which is especially annoying to the patient, and particularly so to the practitioner if there be a suspicion (truth to say, often too well founded) that the aggravation has been due to the treatment. It goes without saying, that the routine practice in eczema has long been to order an application of the benzoated oxide of zinc ointment, irrespective of particular features of the malady in any individual case. Now no greater error in this special direction could be committed. The acutely inflamed skin will rarely tolerate the most perfectly medicated ointment; and as this acuteness subsides, such tolerance is first to be carefully tested, as, for example, by applying a weak ointment to a part only of the affected surface. The term rarely is, however, here used advisedly. With that singular capriciousness which distinguishes the eczematous skin of different individuals, the zinc ointment occasionally affords very great relief in the severest forms of acute vesicular disease.

In the application of such ointments it should be remembered first, that they must be sweet and freshly and carefully prepared; second, that they can be advantageously applied by gently rubbing them into the part by the tip of the finger, after which soft lint in strips, spread with the same material, may be neatly superimposed; third, that an ointment, if selected, need not necessarily be applied to every part of the inflamed skin, since a little pad or circle of lint may be applied only to an oozing or pustular patch; lastly, that the debris of one dressing should be carefully removed before another application is made. Strata of any ointment, the older next to the skin possibly rancid and having imprisoned beneath them pus or other products of the disease, are positive sources of harm.

The most soothing ointments for use at this stage are the benzoated oxide of zinc salve which may be reduced with cold cream one-half or more for extremely sensitive conditions of the skin; Hebra's diachylon ointment, described later, of which one part may be combined with three or four parts of vaseline or cold cream and from five to ten grains (0.33-0.66) of salicylic acid added to each ounce (32.) of the whole; or the oleate of bismuth, prepared according to the formula of McCall Anderson given below.

Appended are a few formulæ for ointments useful in this stage of the disease:

R. Zinci oxid.	℥ss;	2	33-.66	M.
Hydrarg. ammon. chlorid. gr. v-	℥ss;			
Camphor. pulv.	℥ss-℥j;	2-4		
Ungt. aq. ros.	℥j;	32		

For the oxide of zinc may be substituted the subnitrate or the subcarbonate of bismuth, or from two to four grains (0.133–0.266) of the red oxide of mercury, or from four to ten grains (0.266–0.666) of the mild chloride, or from ten grains to half a drachm (0.66–2.) of the ammonium chloride. The cold cream makes an agreeable basis for these ointments, though lard, simple cerate, lanoline, vaseline, or equal parts of vaseline and the other preparations answer a good purpose. The cerates are made sufficiently soft for gentle manipulation by adding a drachm (4.) or two of glycerine to each ounce (32.) of ointment, and may be flavored with lavender, rosemary, or bergamot to suit the taste.

The oleate of bismuth or zinc is prepared by rubbing up one drachm (4.) of the oxide of either metal with eight (32.) drachms of oleic acid, which is then allowed to stand for two hours. It is afterward heated in a water bath, when ten drachms (40.) of vaseline and three (12.) of wax are dissolved in it, the whole to be stirred until cold. It is especially useful in the papular forms of eczema.

The well-known diachylon ointment of Hebra occupies a foremost place in all lists of articles useful at this period of the disease, and even later. It is prepared as follows:

Fourteen ounces of the best olive oil are added to two pounds of water, and heated to boiling in the water bath. Three ounces and six drachms of an equally good article of litharge are dusted over the fluid in ebullition, which is constantly stirred throughout, in order to prevent the formation of fatty acids. During the cooking, water is occasionally added as required. The stirring is to be continued till the ointment is quite cold.

Duhring has lately modified this ointment as follows:

One part of freshly precipitated (from acetate of lead) pure white hydro-oxide of lead is rubbed down with two parts of water, and well mixed with six parts of the best Lucca olive oil. Stir the mixture for about two hours over a hot-water bath near the boiling point, and then cool with constant stirring until the proper consistence is obtained, and while the mass is cooling add one drachm of the oil of lavender to each half pound of ointment. The preparation, according to Eisner, a Philadelphia chemist, is said to contain the oleo-stearate of lead.

When properly prepared this ointment is perfectly homogeneous, of a light yellowish color, and of the consistency of butter. It has been modified by Piffard, and after him by Kaposi, in combining equal parts of lead plaster and vaseline. It is commonly flavored with the oil of lavender. It is technically known as the unguentum diachyli albi of Hebra. It may be imitated fairly well by melting together two or three parts of olive oil, and four of diachylon plaster, stirring till cool.

This valuable ointment, though useful often in full strength and even to the exclusion of all others, is yet with such others often combined with manifest advantage. Thus a drachm or two (4.–8.) of it may be added to the ounce (32.) of lard, cold cream, or cerate, with

or without the addition of another drachm or two (4.-8.) of the oxide of zinc ointment, or even one of the fatty preparations to be mentioned later.

For the management of acute eczema many rely to-day upon the salve muslins, glycerolates, pastes, etc., which are fully described in the chapter on General Therapeutics. Unna's paste is prepared by mixing one ounce (32.) of zinc oxide with two ounces (64.) each of glycerine and mucilage. To it one per cent. of carbolic acid or salicylic acid may be added, and the mixture then applied with a brush. Veiel recommends as a mull for the face and genitals

R. Emplast. plumb. simpl.	} āā ʒijss;	10	M.
Sebi benzoinati			
Adip. benzoinat.			

[To make benzoinated sebum :

R. Seb. taurin.	ʒijss;	10	M.
Benzoës. subtil. pulv.	grs. xv;	1	
Digere in balneo vapor. per horas duas et cola.			

To make benzoinated lard :

R. Adipis	ʒijss;	10	M.
Benzoës subtil. pulv.	grs. xv;	1	
Digere in balneo vapor. et cola.]			

With these may be named the glycerole of starch, cucumber ointment, the emulsion of sweet almonds, the decoction of Irish moss, and the salicylated paste made by combining half an ounce (16.) of vaseline or lanoline with two drachms (8.) each of zinc oxide and starch, and ten grains (0.66) of salicylic acid.

In chronic eczema it is necessary at first to remove from the surface all dried products of the inflammatory process which usually remain upon the surface, such as crusts, scales, and masses of effete epidermis. For this purpose oil is to be freely used, and care should be taken that it is rubbed gently into every part of the affected patch. A species of oil poultice may also be applied by saturating pieces of flannel or layers of antiseptic cotton with either cod-liver or olive oil, and covering these with protective silk gauze and a light bandage. As soon as the inflammatory products are softened they are removed by washing with soap and water, using for this purpose either the ordinary toilet soap, or, where the skin will permit, the spirit of green soap, described in the chapter on General Therapeutics.

The Sarg glycerine soap is an admirable substitute for these articles when the skin is tender, and where an elegant toilet preparation can be ordered. The crusts and scales once removed, subsequent topical application may be made as required in each case.

The acuteness of the disease having fairly subsided, not only as regards the question of time, but more especially as concerns the question of what the skin will tolerate, the fatty and allied preparations become for the first time worthy of consideration. Valuable indeed when such toleration has become experimentally established,

they are sources of positive injury when the acuteness of the inflammatory process has not completely subsided.

The articles of this class most commonly employed are *pix liquida* (pine tar), *oleum rusci* (the oil of white birch), *oleum cadinum*, and *terebinthina Canadensis* (the balsam of fir). The oil of cade, as found in most of the shops, is inferior to the *oleum rusci*, which is certainly the better of the two articles. They are best applied in the form of ointments, but are occasionally painted over the surface with a camel's-hair brush in a liquid state. From one-half to two drachms (2.-8.) of the tar, in combination with a suitable quantity of the subcarbonate of potash, are sufficient to add to a single ounce (32.) of ointment, the proportions suggested being varied to suit the requirements of each case. In attempting to meet such requirements, it may occasionally be found useful to combine with these ointments the oxide of zinc, the mercurial compounds, or the diachylon ointment of Hebra, already described.

The following formulæ are illustrations merely of the manner of compounding these articles :

R. <i>Ol. rusci</i> (vel. <i>cadini</i>)	3ss-3jss;	1-6	
Potass. subcarbonat.	3j-3ss;	.66-2	
Unguent. aq. ros.	3j;	32	M.
Ft. ungt.			

For the potassic subcarbonate one-half to one drachm (2.-4.) of the zinc oxide may be substituted, or from two to four grains (0.133-0.266) of the red oxide of mercury, or yet half a scruple (0.666) of the mild chloride. The vehicle also of such ointments may be vaseline, lanoline, simple cerate, or half an ounce (16.) of either in combination with an equal quantity of diachylon ointment.

Of the fluid preparations may be mentioned alcoholic solutions of tar, half an ounce (16.) of the latter to the pint (512.) of alcohol; and in cases where the deterative action of soap is also needed, the *sapo viridis* may be added as follows :

R. <i>Picis liquidæ</i>	f3j-ij;	32-64	
<i>Sapon. virid.</i>	f3jss-iiij;	48-96	
Glycerin.	f3j;	32	
Spts. vin. rectific.	f3viii;	256	
<i>Ol. rosmarin.</i>	f3ss;	2	M.
Sig. To be rubbed gently into the skin with a flannel rag.			

Dr. Bulkley, of New York, has devised an alkaline solution of tar and caustic potassa, which is especially serviceable, as it is miscible with water in all proportions. It is constituted as follows :

R. <i>Picis liquidæ</i>	f3ij;	64	
Potassæ causticæ	3j;	32	
Aq. destillat	3v;	160	M.
Dissolve the potash in the water, and add slowly to the tar in a mortar with friction.			
Sig. "Liquor picis alkalinus." To be used diluted as a lotion.			

A drachm (4.) or more of this solution may be added to a pint (512.) of water; and, as an ointment, the same quantity to the ounce

(32.) of cold cream, lanoline, or vaseline. It should be remembered, however, that the caustic alkali renders it exceedingly irritating to a sensitive skin, and it should be employed with caution upon any untested surface.

The formula recommended by Spender and described in the chapter on General Therapeutics, is a useful means of testing the efficacy of tar upon an eczematous surface. When fluid or semi-fluid compounds of tar are needed upon the scalp, a drachm (4.) of the article selected may be rubbed up with an equal quantity of glycerine, and added to six ounces of Cologne water (192.).

Hebra disclaimed any special value for sulphur in eczemas uncomplicated by the *acarus scabiei*, but in Wilkinson's and other ointments, it has certainly served a good purpose. The following formula supplies an ointment rather less severe, which has practical efficacy in chronic eczema :

R. Picis liquid. (vel. ol. rusci)	℥iv ;	128	
Adipis	℥j ;	32	
Ol. olivæ	℥ss ;	16	
Misce et adde			
Terebinth. Canadens. }	āā ℥j ;	32	M.
Sulphur. flor }			
Sig. To be applied three times daily with a soft brush.			

To this may be added the green soap, if a stronger effect is desired.

Olive or cod-liver oil may be rubbed into the eczematous skin, after combination with equal parts of one of the tarry preparations; and carbolic acid in lotion and ointment, with the balsam of Peru, though less effective, answers well in many cases.

Ichthyol, in ointments of the strength of ten per cent. and less, is useful in localized patches of the disease, especially of the papular and scaling varieties. The ammonium sulpho-ichthyol is preferable to the sodium compound. Its influence upon the skin seems to resemble both that of the tars and of chrysarobin, and cannot be regarded as greatly, if at all, superior to these agents.

Whichever article be selected, it should be thoroughly rubbed into the affected surface several times in the day, after a small portion of the skin has been attacked to test its susceptibility. Should the redness, itching, secretion, and infiltration be aggravated by such application, it will be needful, for a time at least, to exchange the local treatment for one less stimulating. Should, however, the tarry or other similar application be well borne, it should be reapplied till it is no longer washed away by the ooze from the skin. Sometimes it is well to permit the former to accumulate till it is naturally shed from the surface by exfoliation, a course which will be indicated by the absence of all local distress. The new epidermis which forms beneath such a coating, should be for a time protected by a dusting powder. Occasioning no further subjective sensation, it speedily loses its redness and assumes a normal appearance.

In other cases, indicated by local distress and exaggerated secretion,

it will be found useful to remove the tarry application completely. After saturating it for a few hours with oil, the surface may be cleansed with a weak alkaline lotion, and the tar compound then reapplied to the oozing skin with flannel or a camel's-hair brush, according as recourse is had to an ointment or solution.

Hebra used to employ in chronic eczema of obstinate kinds a remedy which he claimed to be his *ultimum refugium*, and which "cures every case without exception," the concentrated liquor potassæ. The objections to its use are, however, grave. It produces severe pain, and in inexperienced hands it is dangerous. As a consequence, this distinguished dermatologist adopted two methods which he regarded as partial substitutes for it. The first was the inunction of the body thoroughly and firmly with green soap, which was not removed by washing, but left in contact with the skin for several days, while the patient was wrapped in blankets. The second was his well-known method of treating more circumscribed patches of chronic eczema with soap washing and ointment, the process being described below in nearly his own language :

A piece of green soap, as big as a walnut, is spread upon a flannel rag, and rubbed into the eczematous part for several minutes, pressing firmly the while, and from time to time dipping it into water in order to produce a better lather. The part is then washed free from suds with water, carefully dried, and the oil or ointment selected for topical use immediately applied on strips of muslin. These are neatly bandaged to the part. The soap must be rubbed in at least twice every day, so long as any excoriated points appear after its application. Soap rubbed into the healthy skin will not be followed by such effects, the part feeling clean, smooth, and comfortable after it has been washed off with water. The contrast this offers to the eczematous parts is very striking, the latter presenting numerous intensely red, raw, and moist spots. These are all caused by the action of the soap in softening and destroying the layer of cuticle which was before undermined by the eczematous fluid so as to form coverings for vesicles. Each, therefore, represents the floor of a vesicle, the roof being removed. The appearance of these red, shining, moist points after the first inunction suggests to the inexperienced eye that the malady has been aggravated; but they become fewer in number after each application, and finally entirely disappear, the eczematous surface being then no more affected by the soft soap than is the surrounding healthy skin.

For the production of marked effect upon different patches of the eczematous skin—those, for example, upon the palms and soles characterized by callosities, thickening, or even verrucous growths—a ten per cent. salicylic acid salve can be used after the shampooing, or Unna's salicylated gutta-percha plaster mull.

Energetic effects are also obtained by the use of naphthol, chrysarobin, and pyrogallol, in the strength of from one part to ten, to one part to thirty of salve. It is well to begin with a strength not exceeding one to two per cent., and gradually increase.

Frazer¹ speaks highly of the application of iodoform to eczematous patches. It is employed in the form of an ointment, containing from ten to thirty grains (0.66–2.) of powdered iodoform to the ounce (32.) of cerate.

Other stimulating articles have been found useful in the treatment of eczema. Among these may be named cantharides, employed as a blister, the nitrate of silver in crayon or solution, and iodine in combination with carbolic acid. The following formula should furnish a clear vinous-red fluid, which may be applied pure or in dilution:

R. Iodin. tinct.	3ss;	2	
Acid. carbolic. (cryst.)	3j;	4	
Glycerin.			
Alcoholis	āā 3ij;	8	
Aq. destillat.	ad f3j;	32	M.
Sig. Iodized solution of carbolic acid.			

In cases where there is considerable pruritus, especially in obstinate patches of papular eczema, the iodized phenol of Bellamy may be substituted for this. The formula is:

R. Iodinii cryst. }	āā 3j;	4	
Acid. carbol. }			
Combine with gentle heat and add an equal part of glycerine.			
Sig. Iodized phenol; to be applied twice daily with a glass rod.			

Balmanno Squire, of London, has suggested a substitute for the diachylon ointment, in the glycerole of the subacetate of lead. It is certainly a valuable preparation in many cases, but not superior to the other ointment named. The "stock" is prepared as follows: Take five parts of the acetate of lead, three and one-half of litharge, and twenty of glycerine; heat for half an hour in a boiling glycerine bath, constantly stirring, and filter in a gas-oven or other kind of heated apartment. From one-half a drachm to two drachms (2.–8.) of this stock, added to the ounce (32.) of pure glycerine, are sufficiently strong for application to the oozing surfaces of eczema rubrum.

Lassar² recommends that the part affected should be at first well soaked with antiseptic oil, of which a considerable quantity is absorbed by the skin. A muslin bandage, soaked in oil, is then applied, and covered with oil-silk. The oil may be rendered antiseptic by the addition of one to two per cent. of carbolic or salicylic acid, or one and one-half per cent. of thymol. Sometimes the carbolic acid can only be borne for a short time, as it will of itself produce eczema. Rape-seed oil may be used in place of the more expensive olive oil; but drying oils, such as linseed oil, are to be avoided, as they may cause inflammation. In chronic eczema, especially in infants and in eczema of the face, he recommends an ointment. The

¹ British Medical Journal, July 16, 1881, p. 80.

² Annal. de Derna. et de Syph., Sept. 1881.

formula for an ointment which cannot be rubbed off during sleep, in eczema of the face, is :

R. Acid. salicylic.	℥ss;	2	
Zinc. oxid.	℥vj;	24	
Amyli	℥vj;	24	
Vaselin.	℥ij;	64	M.

Wyndham Cottle¹ has employed chaulmoogra oil, or gynocardic acid, in a large number of cases of eczema occurring in persons with delicate skins, and over such exposed surfaces as the face, hands, and arms. In both acute and chronic forms he has employed these substances in the form of ointment, in the strength of from fifteen to twenty-five grains (1.-1.5) to the ounce (32.) of vaseline. The ointment is applied several times in the day, and, if possible, kept in contact with the part on rags over which it has been spread.

Other mercurial preparations than those named above have long been in favor for application to localized patches of the disease. Among these may be named corrosive sublimate, the ammonio-chloride, the iodide and biniodide, the two oxides, and the nitrate.

Calomel, which is exceedingly useful in the strength of a scruple to a drachm (1.-4.) to the ounce (32.) of zinc, lead, or simple ointment, can be often advantageously employed also as a powder in full strength, or diluted with bismuth or starch. In localized patches of papular eczema, where such a dressing can be tolerated, marked results follow this dry dusting of calomel over the part, followed by alternate superposition of neatly adjusted strips of Maw's surgeon's plaster—the whole kept *in situ* by means of a neat bandage. If the itching is alleviated by such a dressing, it can be reapplied for a week as soon as it is loosened, when the redness and infiltration will be found greatly reduced.

Other surgical appliances used in the local treatment of eczema are Martin's solid rubber bandage, Fox's tubular bandage of rubber, and other dressings composed of starch, gutta-percha, and plaster of Paris, intended to support the extremities when the integument is weakened. None of these are equal to rest in the recumbent posture. The most useful purpose subserved by rubber in the treatment of cutaneous affections is as an impermeable outer dressing for watery and oily applications. Here the mackintosh and silk protective of the Lister dressing answer all the indications.

Prognosis.—The greatest uncertainty attends the prognosis of eczema, so far as regards the duration of the disease and the probability of the recurrence of a relapse. With respect to the questions most frequently asked, those relating to contagion, heredity, and persistent lesion-relics, naturally a favorable response can be made. But the fact remains that some forms of the disease are insignificant, some persistent, and some peculiarly liable to relapse from very slight provocation. Only after careful weighing of all the conditions exhibited by the skin and by the other organs of the patient can a

¹ British Medical Journal, June 25, 1881.

reasonable probability as to the future be estimated. All this is unsatisfactory, and must be so. Eczema is truly a curable disease, but unfortunately one not only exceedingly common, but one open to aggravation by causes well nigh innumerable. Were the physician always in position absolutely to insure his patient the exclusion of all sources of irritation, the prognosis would be much more satisfactory. In hospital patients, where such control is more perfectly attained, the results of treatment may be predicted with some confidence.

In general, it may be said that acute eczema is more readily relieved by proper treatment than the chronic forms of the disease; that eczema with a discoverable cause is more manageable than one whose etiology is obscure; that eczema of the very young and of the very old is at times particularly rebellious; that the non-discharging phases of the disease are rather more persistent than those accompanied by secretion; that eczema lingering at the mucous outlets of the body (auditory canal, nostrils, mouth, nipple, anus, vagina) is more obstinate than when it affects the skin of other parts (shoulder, neck, lumbar region); that eczema with constant aggravation or complications (fissure of the hands, varicose veins of the leg, apparatus for ankylosis of knee) is more stubborn in proportion as those complications or aggravations cannot, from the circumstances of each case, be set aside; and, finally, that an eczema which has long existed, or repeatedly recurred, as, for example, with every season of extremely cold or hot weather, is, after relief, extremely liable to return.

THE LOCAL VARIETIES OF ECZEMA.

Eczema of the Scalp. [E. Capitis. E. Capillitii.]

When the scalp is affected with eczema, the symptoms differ somewhat, according to the age of the patient. In adults, the erythematous and squamous varieties of the disease are more common; in infants and children, the pustular. In the former the eruption is usually circumscribed and in patches; in the latter it is more diffused. In the same proportion also the former is generally asymmetrically and the latter symmetrically developed.

In infants and children, the pustules rupture early; and their contents dry into dirty-whitish, yellowish, or greenish crusts, matting together the hairs, serving as foci for dust accumulation and nests for lice, superimposed upon a reddish, oözing, pus-covered, or occasionally indolent skin, often foul-smelling, and usually complicated by a seborrhœa. The so-called "milk-crust" is usually a compound of dried pus and altered sebum. The itching is not so intense as in some other forms of the disease. Post-cervical, pre-auricular, and occipital adenopathy are common, and in strumous children suppuration of the affected glands may occur, though this is rare. The causes of this form of the disease are evidently associated with local conditions. The rapidly growing hairs of the scalp are in intimate association with the numerous and large sebaceous glands of the same

part, which unquestionably respond at times to the physiological stimulus they feel, by an exudative process. The acne of the young man whose beard is growing, illustrates the same fact. Local irritants are not often wanting to push the disturbed equilibrium into the scale of disease. Dr. White calls attention to the common neglect in removing the "pre-natal cap of cheesy material," as well as to the rude and unskilful attempts to accomplish the same end. Extremes of temperature, friction, excess, neglect, and absence of endeavor to wash the scalp, all these contribute to originate or aggravate the disorder.

The affection when complicated or induced by lice, is more common in children than in infancy, doubtless in consequence of the greater independence of the former and their gregarious habits. In girls with relatively long hair, the ova, or nits, of the parasite are readily distinguished, adhering closely to the hairs and accumulated especially about the occipital region. The itching is usually more annoying than in pustular eczema not thus complicated.

The erythematous and squamous forms of the disease, rather more common in adults, originate frequently in seborrhœa, when scratching or irritant applications have been made. The eruption here usually occurs in asymmetrical patches, or may be limited to a single patch tolerably well-defined in outline, and this often upon one side of the scalp, not as in infancy preferring the vertex. Reference is made in the chapter on seborrhœa to a form of eczema of the scalp occurring in adults where finger-nail sized, circular, oozing or slightly crusted patches are generally disseminated over the surface. They result, as a rule, from the scratching of an obstinate seborrhœa in "nervous" women; and suggest traumatism, in their reddish friable crusts, the color being due to exuded blood.

The diagnosis of these forms of disease has been already considered.

In the treatment of the eczema of the scalp in infants and children, the first indication to be met is the removal of the accumulated crusts. When this is harshly accomplished, it becomes a fruitful source of further mischief; it is, therefore, necessary to proceed with great gentleness, and thus the thorough softening of the crusts is all important. For this purpose it is necessary to soak them in oil and to retain this substance in intimate contact with the scalp. Olive or cod-liver oil may be selected, and, if needful to correct the odor or for other purpose, one drachm (4.) of carbolic acid may be added to each pint (512.) with two drachms (8.) of the balsam of Peru. A neatly fitting skullcap should be then smoothly applied, constructed of the Lister protective or flannel, and fastened in place by a light bandage, never by elastic rubber bands. After several hours of soaking, the crusts should be removed by warm water and spirit of soap washing, and the entire process be repeated till the crusts are completely detached. In selecting an article for subsequent medication of the scalp, it should always be remembered that even infantile eczema will proceed to a natural involution if unirritated. Hence the oleated lime-water, or oil of sweet almonds alone, will often answer better

than an ointment, and, even where there is considerable acuity of the inflammatory process, lime-water alone, with possibly a small quantity of glycerine added. In other cases the lime-water can be better medicated with calomel or the oxide of zinc. At times, also, it is well, even when these applications are kept in constant contact with the scalp, to order that a small pea-sized mass of one of the ointments described above [such as the benzoated oxide of zinc ointment with cold cream, or one medicated with a mercurial compound, *e. g.*, calomel, twenty grains (1.33); or white precipitate, ten to twenty grains (0.66–1.33); or the subnitrate of bismuth half a drachm (2.) to the ounce (32.)], be applied at the time of the dressing. This is to be gently rubbed in the surface with the tip of the finger, and the skin afterward protected as before.

It is rarely needful to cut the hair unless nits be found, though in public charities it certainly is a more expeditious method of arriving at the end, when a nurse has to dress the heads of several children in a single ward. In adults, especially in women, the hair should be spared, while the patient is warned that the loss of the growth upon the scalp may be considerable. As a sequel of obstinate seborrhœa such an eczema may be succeeded by alopecia; in the absence of the former, the hairs are usually reproduced. It is rarely necessary to employ the skullcap in adults, since one can succeed in insuring the necessary applications by directing the attention of the patient to the necessity of care and thoroughness.

Lice when present may be destroyed by the application of petroleum. Nits are removed from hairs which it is not desirable to cut, after the petroleum dressing, with alcohol or cologne water.

As the disease in both classes of patients advances to a subacute or chronic stage, the treatment may be changed so as to include the various stimulating applications already described, such as ointments and spirit lotions containing tar, oil of cade, balsam of fir, pyrogallol, alcohol, and sulphur. In the case of infants, however, such stimulating topical remedies are very rarely to be employed. An eczema of the scalp which has once entered upon resolution, in an infant or child, should be generally soothed and protected.

Many little patients thus affected are in excellent general health, and require no internal medication. Others, however, demand the interposition of the wisdom of the physician to protect them from the ignorance or folly of those to whose charge they are intrusted. Here is not space for a discussion of the pressing questions relating to the nutrition of the infant deprived of the breast and starving on the "proprietary" diet purchased of a chemist, or an equally vicious aliment compounded by lime-water, and imbibed through a tube by which it is flavored with India-rubber and the chemically altered casein of milk several days old. A word to the wise is sufficient. Fresh pure milk, animal broths, cod-liver oil, must not be neglected. This concerns the health of the child, and has indirect connection with the eczema. A record of one hundred infants dead of artificial foods

and marasmus in a public Charity of Chicago, includes in the list not a single case of eczema.

Lastly, patients of both classes are to be saved from mercury, arsenic, and the iodide of potassium.

Eczema of the Face. [E. Faciei.]

Erythematous eczema of the face in adults is projected prominently among the varieties of the disease by its uniformity of type. It occurs in early and middle life and advanced years; and is a particularly intractable ailment. In well-marked cases, the forehead, cheeks, eyelids, and nose of the patient are involved, exhibiting an infiltrated, usually dusky-red, often symmetrical patch of disease, the affected surface being slightly elevated above the level of the sound skin. This surface is uniformly smooth and reddened; occasionally, near the root of the nose and about the lower line of the forehead, minute, closely set papules are visible. Very slight oozing, especially after irritation, may be noticed. At the height of the disease or in its involution, exceedingly fine scales form, which are scarcely perceptibly shed from the surface. The lids, especially the lower lids, in advanced years become puffy. The line of demarcation is unusually distinct, and rarely invades the scalp-border or the region of the beard. Itching is at times intense, the patient complaining of this bitterly, and usually preferring to rub the face with the hands or pieces of cloth. Sometimes, however, the face is well scratched with the nails, and excoriations and blood-crusts disfigure the countenance. Patients of intelligence usually describe the itching as paroxysmal, and starting at the root of the nose, whence it travels upward over the forehead, and laterally to the brows, often in the line of the supraorbital nerves. Certainly at the root of the nose, the exudative process is of the most marked character. The eruption also is seen in asymmetrically disposed patches of various sizes, with islets of sound skin between. In resolution of the symmetrical form, this is commonly observed.

Patients thus affected are often those whose faces have been especially exposed to irritation, such as locomotive engineers, wheelmen of sea-vessels, mechanics in trades where the hands are soiled with irritants and afterward applied to the face, and women spending hours of each day over the laundry-tub or the kitchen-stove. In each class the operation of the cause is made manifest by the exacerbation of the disease after exposure.

The affection is most commonly mistaken for erysipelas, a disorder from which it is readily differentiated by the chronicity of its course. The latter feature is particularly characteristic of this form of eczema. It is rarely completely relieved after the age of sixty within a twelve-month; and, when it has existed for a long period of time, is particularly obstinate under the best treatment, recurring with exasperating frequency upon exposure of the face to atmospheric changes. The great vascularity, abundant supply of sensory nerves, and necessary

exposure of the face, probably explain this peculiarity. In its treatment the dusting powders fulfil an important part. Soothing applications should always be first employed. The more stimulating applications may be tried later.

In patients of younger years the face is apt to display vesicular and pustular phases of the disease, forms more often of acute eczema, and correspondingly more manageable. The itching, and especially burning sensations, are apt to be severe; crusts form rapidly; and in infants the picture presented is often that seen in the scalp, except that the hairs are not matted into the crusts; and there is often a reddish blush at the edge of the crust; or, when the latter has been removed, a redness of the oozing surface somewhat more marked than the similar patches on the less vascular scalp. The scratching in these little patients is severe; crusts are torn off in part or wholly; blood-crusts excoriations are common. The area of surface involved is in this way clearly extended; sleep is greatly disturbed; and the irritability and fretfulness of the child, thus produced, bear heavily upon its general nutrition. In severe cases of long standing the mental tone of the little sufferers becomes singularly perverted, and the character unquestionably changed. They will occasionally, when permitted, pick off and devour the crusts with voracity, and undergo nervous crises which are but a step removed from convulsions, and doubtless allied to the *petit mal* of the epileptic.¹

This chain of formidable symptoms, well linked together, will often bid defiance to the most skilled efforts to impart ease to the tormented skin. In such cases the harness employed by Dr. White, of Boston, fills an important office. The skullcap, described above, and made of firm old cotton or linen cloth, is closely fitted to the calvarium, and a mask of the same material is shaped to the face with exactly placed apertures for the eyes, nose, mouth, and ears. It is gathered in beneath the chin, and laps over two inches at the back of the head. This may be used only during sleep, or in aggravated cases, also during the hours of wakefulness. A species of strait-jacket is made by passing the head of the child through a hole in the closed end of a small pillow-case, which is then drawn down over the body and arms, and the latter confined at the sides by stitching the case together between the trunk and the upper extremities, or accomplishing the same end with safety-pins. The jacket is finally secured by similar means between the thighs. When it is necessary to imprison the lower extremities, these are similarly secured by pins within the case; and the outer edge of such trousers can be fastened to the bed or cushion on which the child reclines. Of course this treatment does not preclude the employment of the washes, ointments, etc., which are to be neatly applied next to the skin beneath the "trousers" or "jacket." The result is that rest is given to the tormented skin,

¹ Among the criticisms elicited by the appearance of the first edition of this treatise, it was charged that the picture given in this paragraph is exaggerated. The experience of the critic, however had been too narrow. The accuracy of the description given above has been more than once confirmed in the observation of the author since these lines were first written, and they are left standing to-day as a hint of the truth.

which is not suffered to be exposed to a single scratching even during the dressing of the parts; and its natural tendency to repair soon brightens up the case.

In the treatment of these cases, the black wash and zinc salve treatment will be found valuable, as also the diachylon salve, lead lotions, and the glycerole of starch. Van Harlingen gives the following :

R. Pulv. zinc. oxid.	3j;	4	
Sevi purificat.	3ij;	8	
Adipis	3iv;	16	
Pulv. ulmi flav.	q. s.;		M.

To protect the face from the cold air he also employs half an ounce (16.) each of glycerine and gum tragacanth, half a drachm (2.) of borax, and water sufficient to make a paste.

In obstinate cases tar should be employed. It is well to remember in the management of any case, that while a tarry application may be well tolerated over one part, as, for example, on the cheeks and near the nose, in another, as, for example, over the lids, a zinc salve may be better employed in the same individual.

Eczema of the Lips. [E. Labiorum.]

Reference has been already made to the obstinacy of eczema occurring near the mucous outlets of the body, a result due, probably, to the secretion furnished by the adjacent mucous tracts. The lips furnish an illustration alike of this pertinacity and aggravation. Their frequent motions in mastication and articulation aggravate an eczema, which is, moreover, apt to be teased by a no less frequent thrusting of the tongue out of the mouth, where there is no beard, to wet the parts with mucus and saliva. One or both lips may be involved, vesicular, pustular, squamous, and erythematous lesions occurring at one point, or along the entire line of either, with frequently resulting crusts and fissures. The vermilion border of the lips commonly participates in the process. The lips become hot, sometimes much thickened by the swelling and infiltration, their mucous faces being rarely implicated. Scarlet, dull red, and other peculiarly purplish hues of the vermilion border become visible. The parts are more picked than scratched, though the itching is at times severe. The pustular and vesicular forms are more common in children. The erythematous form, its reddened outline roughened by scales, evenly projected beyond the vermilion border, is rather an affection of maturer years. In young children the disease is frequently aggravated by nasal discharges which flow over the lip, giving the latter an elephantiasic aspect or even the appearance of an animal's snout, a condition noted also in later life. Occurring upon lips covered with the hairs of the moustache, the disease exhibits the usual symptoms of eczema barbæ. In these male patients, the pipe, the cigarette, the cigar, and the tobacco chewed and expectorated may aggravate the malady. In all cases it is obstinate, and calls for

either emollient, stimulating, or protective applications. In cases displaying acute and painful symptoms, frequent fomentations of the part with soft rags dipped in hot mucilaginous and alkaline waters, will aid in controlling the swelling and alleviating the pain. In chronic cases, where stimulation is demanded, this can be effected at the time of dressing, the parts being subsequently protected by collodion or other material. Carbolic acid and the nitrate of silver are often needed for such dressing. In eczema of the hairy lip it is often of great service to remove the moustache by shaving.

Fox suggests the use of thymol, five grains (0.33) to the ounce (32.) of cold cream. Van Harlingen applies equal parts of dilute phosphoric acid, glycerine, and syrup; and to the outer edge of the lip, two scruples each (2.66) of zinc oxide and honey, six drachms (24.) of the oil of sweet almonds, and two drachms (8.) of wax. Veiel paints the lips twice daily with soft soap. Taylor's application of the tincture of benzoin, each ounce (32.) containing one to two grains (0.06–0.13) of corrosive sublimate, is a valuable solution for painting over the cracks and fissures near the angles of the lips.

The diagnosis is between sycosis parasitaria, herpes labialis, and epithelioma, the points of difference having been already suggested. The first is accompanied by loosening of the hairs, and caused by a parasite; the second is vesicular in lesion, brief in duration, and trivial in severity; the third is a disease of advanced years, rather than of early and middle life, and is never accompanied by itching, but usually by more or less ulceration. Syphilis is fond of the angles of the lips; in most cases when thus limited, typical mucous patches of the mouth can be discovered.

The lesions of syphilis at the angles of the mouth are seldom linear fissures, but more often irregularly outlined erosions, secreting a puriform mucus.

Eczema of the Nostrils [E. Narium]

is naturally often associated with a chronic coryza. Inasmuch as one of the common symptoms of hereditary syphilis is the "snuffles" of the child, the physician should carefully exclude the possibility of such disorder in every instance when an infant with coryza exhibits an "eczema" of the nares or lips. The age of the little patient; an inspection of its anal region (which should never be omitted in infantile eczema); and the history of the case will throw considerable light upon this important question.

Whether occurring in the adolescent or child, the disease may linger only upon the alæ in pustular or squamous forms, or block up the nares with crusts. In infants this enforces respiration with an open mouth, and the grasp of the nipple by the lips is thus interrupted either by respiratory acts or cries of agitation. The Schneiderian membrane participates in the inflammatory process, and pours out its secretion upon the eczematous skin. The membrane when inspected is seen to be either raw and succulent, or in a condition

analogous to that seen in the pharyngitis sicca of authors, dry, glazed, and free from discharge. The nostrils are often thickened in consequence of infiltration or fissured, especially at the lines of the nares laterally and inferiorly. In severe cases, and when the lips participate in this process, the pouting, swollen, and distorted organs suggest the snout of the lower animals. Adults as a result frequently suffer from non-parasitic sycosis and furunculosis.

Care should be taken to exclude syphilis in making a diagnosis, bearing in mind the fact, that the pustular syphiloderm (which see) frequently selects the furrow on either side of the nares for its evolution.

In treating these cases all crusts should be removed, and the parts carefully protected. Picking the nose in children should be prevented if needful, by the "strait-jacket." Pencillings with the compound tincture of benzoin, iodized phenol, nitrate of silver, and collodion will often prove serviceable. In softening crusts, oil may be freely used. For this purpose the warm carbolized spray of the atomizer answers well, medicated with resorcin which may also be efficiently employed for the relief of the nasal catarrh, often responsible for the disease in adult cases. Unna recommends drainage tubes in such patients, wrapped with lead ointment mull, and, after the softening of the crusts, painting every second day with yellow precipitate ointment. In the same way a weak citrine ointment or white precipitate salve may be used. When the disease extends well up the nares, Neumann employs bougies made by combining two grains (0.138) of zinc oxide with sixteen (1.06) of cocoa butter.

Eczema of the Ears. [E. Aurium.]

The ears are affected with eczema both in infancy and maturer years, rather more often in women and children, the disease being limited to the whole or part of the organ, or extending backward over the post-auricular region, or downward over the ramus of the superior maxilla. It may be acute or chronic, and originate in chronic or catarrhal discharges from the external auditory meatus; in exposure to temperature changes, especially when aided by high winds; in frost-bite; in the irritation set up by pediculi and by the auricular limb of the frame of spectacles; in the toxic effect induced by the hook of cheap ear-rings and dyed bonnet ribbons; in the traumatism of ear-piercing; and in the habit of unnecessarily picking the ear to relieve it of wax or trifling sensations of irritation.

The pustular and moist forms are common at the superior, inferior, and posterior boundaries of the pinna, where a linear fissure is apt to form in the line of the angle made by the auricle with the plane of the adjacent integument. The motions impressed upon the ear by handling it, placing the hat on the head and tying hat strings over it, always tend to aggravate the disorder. Long hairs worn over the ears may have a similar effect by the production of friction and the retention of heat. The lobules are apt to display the erythematous

and scaly phases of eczema, becoming infiltrated, having a deformed appearance, a lurid red color, and indolent course. The lobules alone of both ears in young women may be similarly affected, and exhibit these phenomena for consecutive years. Often the chronic inflammation may lay the foundation for a keloidal growth, an accident of several inflammatory processes in other parts. At other times the entire auricles present a similar appearance, uniformly dark red, infiltrated, alternately weeping and scaling, and projecting to a noticeable extent from the side of the head in consequence of their increase in bulk. The itching is usually more annoying than severe, being accompanied by a characteristic sensation of tenseness and fullness of the part. Like the eczema which occurs at the other mucous outlets of the body, the affection in these parts is particularly obstinate when it assumes a chronic form. Symmetry to the extent of involving both ears, though commonly to a different degree in each, is rather the rule than the exception; and is doubtless due to the simultaneous operation of effective causes.

The diagnosis is between erysipelas, seborrhœa (which occasionally occurs in the concha of the auricle), erythema simplex and multiforme, and dermatitis calorica. The mouth should always be carefully examined in these cases for sources of trouble.

The treatment should be at first soothing and protective by the zinc salve or diachylon ointment; afterward stimulating. A firm bandaging of the ears to the head may be required to support the parts, to prevent irregular pressure (head upon the pillow), and to secure contact with external medicaments. In chronic cases, stimulant applications are often well tolerated, and the tarry ointments here play an important part. Treatment appropriate to the otitis externa may be required. Bulkley recommends a tannin ointment, one drachm (4.) to the ounce (32.), deeply and thoroughly passed into the meatus on a camel's-hair brush. French authors generally recommend small tampons smeared with an ointment and left in the canal. Burnett employs two drachms (8.) of the oil of tar to one ounce (32.) of alcohol. Great benefit is derived from pencilling the indolent surfaces with solutions of the silver nitrate. The intractable forms almost invariably affect adults, and in them there is usually a history of improvement under treatment, then, in men, exposure, as, for example, to the wind, or, in women, excessive dancing, etc., and subsequent aggravation.

Eczema of the Lids. [E. Palpebrarum.]

Here the free edge of the lid, or the skin over the orbital margin of the tarsal cartilage, may be chiefly affected; and either, both in children and adults. When the free edge of the lid is involved, there is a species of sycosis non-parasitica present, the hair-follicles becoming inflamed and furnishing a purulent discharge which may agglutinate the lids. The latter are thickened and swollen, become the seat of a moderate itching, are picked rather than scratched, and

exhibit minute crusts between, or glued to, the hairs. The disorder is often accompanied by a seborrhœa of the Meibomian follicles, and is described by oculists under the designation of "blepharitis" and "tinea tarsi." Inasmuch as the facial expression is quite characteristic when the lids are thus involved, the patients exhibiting this form of eczema are usually set down as "scrofulous," though it occurs in many individuals with no other sign of struma, and eczema surely is not such a sign.

Fissures occasionally form at the commissure of the lids. The disorder may complicate eczema of the other parts of the face. In the erythematous eczema faciei of adults, there is usually swelling with puffiness, especially of the lower lid. The conjunctiva may, or may not, be implicated. A chronic granular condition of the lids is not noted as frequently as might be suggested by *a priori* reasoning.

The edges of the lid should be carefully cleansed with a weak alkaline solution and soft camel's-hair brush whenever the lid itself is involved, then as carefully dried and anointed with cold cream. In acute cases the closed lids may be frequently bathed with warm alkaline solutions; and strips of soft lint, soaked in the same material, or a very dilute glycerine or carbolic acid solution, may be laid over the closed lids for as long periods during the day as they are comfortably tolerated. In chronic cases the red oxide of mercury ointment, one grain to ten (0.066–0.66) to the ounce (32.), has always been held in high esteem. Oculists, in the treatment of this affection, are fond of using an ointment of the yellow sulphuret of mercury. In place of these, the unguentum hydrargyri nitratis, one part to six of cold cream, may be applied. Epilation of the eye-lashes may rarely be necessary. Pencillings with solutions of the nitrate of silver in various strengths are also useful in chronic cases, but these must be carefully confined to the lids, and not suffered to come into contact with the conjunctiva. Excessive use of the eyes must be prohibited.

In the diagnosis, care must be taken to exclude syphilis, lupus, and pediculi. The author has seen but one instance of piedra of the eye-lashes. Instead of the ordinary nits of the lash, there were in this case jet-black, small pin-head sized masses of ivory-like hardness attached to the hairs.

Eczema of the Beard. [E. Barbæ.]

Eczema may involve the region of the beard only, or may spread to such parts from those in the vicinity, or may, finally, extend from the beard to other parts of the face. The first is common, and furnishes, perhaps, the best type of the disease; the second is also common, but usually subordinate in importance to other trouble of the facial region. The last is decidedly the rarest. It is indeed a matter of surprise that an eczema should, as it often does, endure for years, limited exclusively to the region of the beard and never for once transgress these limits.

This fact furnishes a convincing argument in favor of the local origin and of the frequency of local sources of aggravation of eczema. Rarely will one see a picture more suggestive to the uneducated eye of "scrofula" or "humors of the blood" than the face of a middle-aged man, with long-standing eczema of the entire region covered by the beard. The hairs are thinned, and fail to hide completely the reddened surface beneath, covered here and there with pustules or floors of broken pustules, dried inflammatory products, yellowish and greenish scales and crusts. Beneath the crust the surface is smooth, not lumpy, as in parasitic sycosis. The hair-follicles are not solely involved, as in the non-parasitic form of sycosis, but evidently they are also the integument between them. In recent eczema the hairs are not loosened in their follicles, but in chronic cases such loosening does unquestionably occur, and there is a true defluvium capillitii. The disorder is evidently one primarily involving the skin of the region of the beard, and secondarily the hairs, extending smoothly over that surface, as smoothly as an eczema on the cheek of a woman. There is commonly a certain degree of symmetry, to the extent at least of involving the beard in different degrees on both cheeks at once, or the chin on both sides; often the symmetry is perfect. This is rare in the parasitic affection of the same part.

The disease is accompanied by itching, rarely as severe as upon the smooth parts of the face, is particularly obstinate, and extremely disfiguring. When extending into the region of the beard from other parts, it is usually associated with eczema of the ears. When limited to the region of the moustache, it may be connected with an eczema of the nares and a chronic nasal catarrh.

The explanation of the obstinacy of eczema of the region of the beard is to be found in the hairs which cover it. Whether the latter be long or short, feeble or strong, each during the twenty-four hours acts to a certain extent as a lever in motion upon the portion of the integument in which it is implanted. In conditions of health, the skin tolerates well this motion; in disease it becomes a positive source of trouble. Multiply by thousands the impression produced upon the healthy skin when a single hair or group of hairs is moved by a strong current of air, by the fingers, by a brush, or by any other externally operating cause, and some idea may be had of the extent to which this force may become effective. But the best evidence of the fact is to be found in the results which follow the removal of the beard. Clipping short the hairs of the face will not answer, though generally preferred by the patient as exposing to a less degree the unsightly surface beneath. Nothing short of shaving, and continual shaving every second day, will effect the desired result in chronic cases. As soon as the disease is reduced practically to an eczema of the non-hairy parts, it improves, in proportion to its distance from the mucous outlets of the body. When limited to the bearded cheeks, the most obstinate cases may be in the course of a single month robbed of one-half of their unsightliness. It may be needful to employ the usual methods—oil, hot water, and soap—to remove the

crusts before the first shaving, and any imprisoned pus should be evacuated. The patient should be encouraged by reminding him that usually it is but the first step which costs; each succeeding removal of the beard is accomplished with greater comfort to himself physically and mentally. After each shaving, the skin should be bathed in water as hot as tolerable, and, if at night, a lotion may be used, or an ointment, or the latter after the former. The salves most useful for this purpose are sulphur, one drachm to the ounce (4. to 32.); the diachylon ointment with salicylic acid, five to ten grains to the ounce (0.33–0.66 to 32.), and the zinc ointment. Best of all, however, is the dusting powder; and, as soon as practicable, the patient should limit himself to this application. The shaving should be continued for months after the disease is at an end. It is indeed surprising to note in such cases how quickly the “scrofulous” look disappears, and the evidences of a “humor of the blood” are no longer evident in the face. The longer the limitation of the disease to the region of the beard, the more brilliant, as a rule, is the result. It is not often necessary to resort to the tarry applications in this form of the affection. When complicated by eczema of the post- or infra-auricular region, stalactite-shaped crusts depending from the infiltrated lobule in consequence of the unintermittent drip of serum from above, eczema of the region of the adjacent whisker is less readily managed.

Flat epitheliomata of the bearded cheek are not to be confounded with eczema barbæ. The points of difference have been previously noted. It should be remembered also that the age of the patient, the career of the disease, the possible eversion of the neighboring lid, or agglutination of the adjacent lobe of the ear, distinctly high elevation, or ulceration of tissue, absence of itching, and distinct localization of the disease are all characteristic of this form of carcinoma.

Eczema of the Genital Organs. [E. Genitalium.]

Here the disease is remarkable for the severity of the subjective sensations it occasions; for its tendency to persistence, recrudescence, and nocturnal exacerbation, and for the liability to the production of the sexual orgasm by the act of scratching. In men the surface most often involved is the anterior, posterior, or lateral faces of the scrotum where they meet the thigh, though the surface of the penis, as also that of the pubes and perineum, may be involved. In women, the labia majora, more rarely the labia minora and vestibule of the vagina are affected, with occasional extension of the disease to the same contiguous parts as in men.

Eczema thus located is, as a French writer has well said, “a dry disease in a moist locality.” Vesicular and pustular forms are much rarer than the erythematous, the papular, the papulo-squamous, and the erythemato-squamous. In women, the moister forms are more frequent, doubtless because of the wider mucous outlet, and the more extensive mucous tract in the vicinage. The labia are then heightened in color, œdematous, agglutinated by crusts, and often torn viciously

by the finger-nails. Blood-crusted excoriations are seen in most severe cases. An eczema intertrigo at the labio-femoral angle is common. Over the whole may be poured the secretions from uterus or vagina, normal or pathologically altered. The disease is, however, sufficiently common after the menopause, when there is physiological atrophy of the uterus.

The typical disease in men is recognized in the thickened, reddened, perhaps slightly scaling integument of the scrotum, which may also be fissured, excoriated by the nails, or covered by blood-crusts. Torn papules, often closely packed together, may be seen with a peculiarly lurid, even purplish hue. In exaggerated cases the infiltration is so great as to deform the parts, increasing the thickness of the scrotal integument to many times its normal dimensions, producing thus an elephantiasic appearance. In eczema of the penis the prominent symptoms are also œdema, itching, and redness, with slight scaliness.

In both sexes, as before stated, the attempts to relieve the itching are often as severe and prolonged as they are ingenious. Commonly no relief is obtained till a serous sweating or weeping of the thickened tissues is induced by the friction. Inasmuch as the latter is in severe cases frequently repeated, the physical dangers are obvious.

Apart from this, however, the disorder has a marked tendency to disturb the mental tone and the general health. Shame deters many from seeking speedy relief, so that cases of long standing are those more commonly registered by the physician. Though entirely unconnected with venereal disease of every kind, there is, for the many, a special dread of an eczema of these parts, precisely because of its location. With sleep disturbed, the mind agitated, and the nervous system teased by an intolerable pruritus, one can scarcely wonder at the eloquence with which many patients describe their sufferings. It is a disease of middle life and advanced years. It is rare to see a well-marked, obstinate case in a child.

The causes, exciting and aggravating, of eczema of the genital region are to be sought in heat, moisture, and friction. These primary factors are favored—first, by the effect of gravity, the organs in question being situated, when the body is in the erect position, at the inferior apex of the double cone forming the trunk, and being thus subject to the force of gravity; second, by the arrangement of the clothing in both sexes, by which heat and friction effects are heightened; third, by uncleanliness, the secretions and discharges from the adjacent mucous tracts being suffered to accumulate upon the person; fourth, by a long list of sexual errors which operate by obstructing what may well be termed the sexual ebb—that is, the natural reflux by which each periodical physiological congestion of these organs is by a natural process relieved. That the skin of these organs participates in such periodical congestion is a fact demonstrable to the eye. The abundant supply of bloodvessels, lymph-

atics, and nerves to the parts, furnishes all necessary elements for the explanation of the formidable series of symptoms often displayed in eczema genitalium.

In many eczemas of the surface, especially of the genital organs, the urine will be found to contain albumen or sugar, and these conditions have been supposed to lie at the root of the eczema. One author has even prescribed a diet for the eczematous patient with saccharine urine. The explanation of the phenomenon is, however, sufficiently simple. It is the eczema which causes the elimination of the sugar or albumen, and not the reverse. Sugar and albumen are known to be producible in urine by external irritants, and, among the latter, by cutaneous diseases. Merely varnishing a portion of the skin has been followed by these effects. If patients with saccharine urine and severe genital eczema can be kept in bed, in the recumbent position, for a few days, while any soothing application productive of comfort is continuously applied to the tender and excoriated surface, the sugar will often rapidly disappear from the fluid excreted from the kidneys. These renal symptoms are in part reflex, resulting from the extraordinary irritation of the nerves distributed to the involved surfaces.

The so-called *diabétides génitales* of French authors may include some genital eczemas occurring in diabetic patients. But it is certain that many cases of very extensive and severe eczemas of the genital region in both sexes occur in patients in whom the most careful and repeated examination of the urine fails to reveal traces of sugar. The practitioner is urged never to omit such examination in his treatment of a typical case.

The treatment is to be conducted on the general principles heretofore enunciated. Sponging of the genital region with alkaline water as hot as can be well tolerated, followed by the blander oils and ointments at night, and the use of anti-pruritic dusting powders in the daytime, must not be omitted. In eczema of the scrotum, the suspender lined with lint which is wet with a lotion, smeared with an ointment, or thoroughly covered with a powder, can be usually employed to good advantage. The habit of scratching must be broken up at all hazards. In chronic cases, the treatment by soft soap and diachylon ointment will be found useful. Caustics, solutions of the mercuric bichloride and other mercurials, carbolic acid, and especially the tarry compounds, are often necessary.

Finny, of Dublin, uses the following formulæ, which are useful in allaying the irritation :

R. Liniment. calcis	f℥iv;	128	
Belladonn. extr.	gr. xij;	80	
Zinci oxid.	℥ij;	8	
Glycerini	f℥ij;	8	
Aq. calcis	f℥iv;	128	M.
Sig. "Lotion to be applied at night after bathing the parts in hot water."			

R. Lin. calcis.	f $\frac{3}{4}$ iv ;	128	
Acid. hydrocyanic. (dil.)	f $\frac{3}{4}$ j ;	4	
Liq. plumbi subacetat.	f $\frac{3}{4}$ ij ;	8	
Glycerin.	f $\frac{3}{4}$ ij ;	8	
Aq. ros. ad.	f $\frac{3}{4}$ vij ;	256	M.
Sig. "Cream, for application on strips of old linen."			

Exceedingly obstinate eczema of the pubic region is benefited by shaving and subsequent appropriate treatment. When complicated by intertrigo, the latter condition requires special relief by the interposition of soft lint spread with an ointment.

The diagnosis is between ringworm of the genitals, acne, pruritus, pediculosis, the venereal disorders, and herpes progenitalis. The first named may occur alone, or induce, or be grafted upon the eczema. It will be recognized by the discovery of the trichophyton, and is clinically distinguished by the crescentic edge of the spreading patch, with its convex border looking away from the genital centre. The "follicular vulvitis" of gynecological authors is a genital acne, and manifestly limited to the glands and peri-glandular tissues. The same is true of bromine and iodine acne, which may be developed in the same situation in both sexes. Genital pruritus may beget an eczema by scratching, but is accompanied by no proper skin lesion. The pubic louse is visible to the eye, as are also its reddish excreta and nits. The ulcers and sclerosis of the chancroid and primary syphilis are not accompanied by pruritus, and though occasionally multiple, never exhibit diffuse patches of disease. The syphilo-dermata are recognizable by their characteristic features, and by the history of an infectious disease. In herpes progenitalis there are precedent burning, smarting, or neuralgic sensations, the occurrence of vesicles or groups of vesicles (lesions rare in eczema of the genitals), and frequent limitation of the disorder to the mucous surfaces or the muco-cutaneous lip by which such surfaces are bounded. In eczema such boundaries are usually respected, and the disease is much more strictly cutaneous.

Eczema of the Anus and Anal Region [E. Ani]

in its etiology and characteristics is closely allied to the same disease in the genital region. The presence of ascarides and hæmorrhoids occasionally induces or aggravates the disorder; though this is rarer than is commonly supposed, since multitudes of men and women who suffer from piles never complain of eczema. The eczema may occur in erythematous, squamous, or papular form, in the order named; thus exhibiting here, as in the genitals, "a dry disease in a moist locality."

The redness, infiltration, and itching, may be limited to the verge of the anus, radiate from the latter in stellate lines, creep upward between the nates in the cleft, sweep forward over the perineum to the genital region, or extend laterally with intermediate intertrigo over the inner face of each thigh. Rarely the buttocks are covered with the same lesions.

The disease is common in infancy, where want of care in the removal of the napkin is a fertile source of mischief; and also in middle life and advanced years, when it becomes particularly intractable. The itching is intense in the latter class, with frequent nocturnal exacerbation. Unfortunately the scratching is often reflex, and practised during the unconsciousness of sleep, from which the patient is often roused by his or her manipulations. Pollutions fully recognized, or occurring during profound sleep, or, more usually, in states of semi-consciousness, complicate certain cases; defecation becomes painful. The harassed nervous system of the sufferer is often in a deplorably wretched condition. In cases of long standing the usual congested, thickened, infiltrated, and almost elephantiasic appearance is presented, with exaggeration of the natural furrows and occasional fissures. The part may simulate in aspect the formidable conditions discovered in passive pederasty. Excoriations are common around the anal verge.

The diagnosis is that of eczema of the genital region.

In the treatment of these cases the use of very hot water by sponging, and the subsequent application of ointments, has yielded the best results. In the case of infants the dusting powders and blander ointments are alone to be employed; in adults, especially in chronic cases, the tarry applications are especially valuable. Here the tincture of tar may be freely painted over the surface, or one of the tarry ointments, such as the Wilkinson salve, of sufficient firmness to retain its form as an unguent when subjected to the heat of the part. Caustics are useful when there are fissures. Corrosive sublimate, one-half to one-quarter of a grain (0.033–0.016) to four ounces (128.) of the milk of almonds; Squire's glycerole of the plumbic subacetate, half a drachm (2.) in two ounces (64.) of glycerine and water, or, as a substitute for the latter, the soft soap and diachylon plaster, are here of special service. Van Harlingen recommends almond oil containing twenty per cent. of carbolic acid. When defecation is painful the stools should be semi-liquid in order to insure non-aggravation of the local disorder; not, it need scarcely be remarked, with a view to eliminating any *materies morbi* by purgation. Small tampons of cotton may be smeared with an emollient ointment, and gently inserted for a short distance within the anus. Kaposi recommends butter of cocoa suppositories, containing zinc oxide with belladonna or opium. When complicated by true fissure of the anus the sphincter ani must be stretched, divided, or dilated with medicated bougies.

Besnier recommends the use of a clyster after each bowel movement, the fluid being retained for but a short time. At night, a cataplasm is applied. The parts are frequently washed with tepid water, and the anal tampons are smeared with cocaine. During the day, the oxide of zinc salve, thirty grains (2.–32.) to the ounce of vaseline, is applied, and the parts are also thoroughly sprinkled with equal parts of the zinc oxide and subnitrate of bismuth in fine powder.

Van Harlingen suggests after the use of the hot bath, with the

addition of starch and glycerine, an ointment composed of one part of cod-liver oil to two parts of suet. Veiel prefers the cautious use of chrysarobin to tar, employing the latter either in the form of spirits or as a tar diachylon, one part to twenty, gradually increased in strength. Carbolic acid and glycerine, a few drachms of each to the pint of elder-flower water or almond emulsion, are specially indicated in fleshy women when the disorder, as is often the case, is complicated with intertrigo.

Eczema of the Nipple and Breast of Women [E. Mammæ]

is common in nursing women from either the irritation produced by the mouth of the infant, or, more commonly, in consequence of a galactorrhœa. Eczema intertrigo is common below and between the breasts. The eczema here is vesicular, erythematous, or squamous in form, with fissures of the apex, side, or base of the nipple. The serous ooze from the infiltrated areas dries as usual into light-colored crusts. There are the characteristic burning and itching. The disease may occur on one or both breasts, and, especially with a galactorrhœa in summer, may spread extensively, covering both breasts, the surface of the belly, and the intermammary region. The circumscribed forms occur also in pregnant or unmarried women, and are to be distinguished from scabies, which in women is apt to occur upon the breast.

“Paget’s Disease of the Nipple,” or “malignant papillary dermatitis,” the so-called eczema of the nipple and cancer of the breast, is designated by Thin¹ as a destructive or malignant papillary dermatitis. The mammary tumors here formed are found to originate in the epithelial lining of the lactiferous ducts, the elements of which undergo, at an early period of the disease, a cancerous transformation. Clinically, there is usually observed in such cases a sunken nipple, its site occupied by a bright red or livid infiltrated patch of distinct outline, differing thus from the irregular definition of the contour of the eczematous area. In all cases of subcutaneous tumor or coincident axillary adenopathy, the physician should be especially careful in the matter of prognosis.

The treatment is in general that described above. In severe cases with galactorrhœa, nothing short of weaning the child and a cessation of all demands upon the breast will insure relief. Every effort should be made in milder cases to avoid this *dernier ressort*. At first, scrupulous care; pencillings of fissures with a crayon of silver nitrate or the tincture of myrrh; gentle anointings with emollient zinc, thymol, or carbolic acid ointments, which should be carefully washed off before the child is put to the breast; and, finally, dusting powders, with soft lint retained between and beneath the breasts, are measures to be tried. Later, the sublimate solutions, diachylon ointment or naphthol, two per cent. in alcohol, may be employed. Veiel

¹ London Lancet, Amer. ed., p. 533, June, 1881.

recommends the application to all fissured nipples of Lister's borax salve:

R. Acid. borac. subtil. pulv. }	āā gr. xv;	1	
Ceræ alb. }			
Paraffin. }			
Ol. amygdal. }	āā 3ss;	2	M.

Fournier recommends a breast-plate of caoutchouc. When limited to the nipple and areola in nursing women, the glass and rubber apparatus sold in the shops may be tried in the hope of saving the nipple from the mouth contacts in nursing. Sometimes they answer admirably; often they fail utterly.

Paget's disease of the nipple should be treated as a carcinoma, and may eventually require removal of the breast.

Eczema of the Umbilicus. [E. Umbilici.]

This local variety of the disease is briefly described in the chapter devoted to seborrhœa. In most cases it is either induced or aggravated by a local seborrhœa fluida, which gives origin to the peculiarly nauseating odor characterizing the disease. Generally a reddish and infiltrated, more or less annular patch surrounds the umbilical depression, which may be filled with crusts. Syphilodermata, pediculosis, and scabies in women are to be carefully excluded in the diagnosis. The liquor sodæ chlorinatae, carbolic acid solutions, and, in chronic cases, iodized phenol will be required in its management. Care should be taken that the dressing of the navel in the newly born infant, the improperly adjusted apparatus for retention of an umbilical hernia, and the corsets or "uterine supporters" of women, do not occasion or aggravate the disease.

Anderson reports that in typical cases, especially of those affected with scabies, the navel is swollen and projects in the form of a small tumor.

Eczema of the Superior and Inferior Extremities. [E. Membrorum. E. Crurale.]

The flexor surfaces of the extremities, especially in the vicinity of the joints, are particularly prone to exhibit symptoms of the disease. With these should be properly included the axillary and inguinal spaces. In all such localities the alternate tension and relaxation of the integument serve when the limbs are in motion, to increase the pruritus, and, correspondingly, to aggravate the disease. Often a certain degree of symmetry can be perceived, the two popliteal spaces, for example, being simultaneously affected, though each to a different degree. The parts most favorable for the complications of intertrigo are those nearer the trunk where the moisture and heat are greater, as the groins and axillæ, while the elbow and popliteal spaces are more frequently dry, exhibiting papulo-squamous ridges in lines at

right angles to the axes of the limbs, with hyperæmic patches on either side.

Upon the legs, where the force of gravity is more potent than in other parts of the body, exaggerated forms of eczema are found complicated with varicose veins and œdema, with dense infiltrations and indurations. In ancient cases the frequent elephantiasic aspect is significant, one limb being by several inches larger in circumference than its fellow, covered from knee to ankle with enormous patches of eczema rubrum of an intensely angry appearance, moist and crust covered; or dry, glazed, and of a lurid reddish hue; or dry, horny, and ridged with irregular projections surmounted by scales resembling the rough bark of a tree; or, again, with or without œdema, tense, inelastic, seamed with scars of old varicose ulcers, and deeply and irregularly pigmented, a condition with great difficulty distinguished from syphilitic ulceration of the same region. At its onset, eczema of these parts may assume any one of its known forms. In infants with long clothing, where the lower extremities are subjected to a higher temperature than in adults, the vesicular and pustular forms are common. The exceedingly obstinate forms of eczema of the legs, especially those complicated with varicose veins, are, of course, those encountered in middle life and advanced years.

The diagnosis is, in general, to be established by considering the points heretofore discussed. The chief difficulty lies in distinguishing the eczema associated with ancient varicose cicatrices of the leg, from syphilitic scars of the same locality which have resulted from degenerating tubercular syphilodermata or gummata. In some cases when no distinct history can be obtained, there will be a necessary doubt, as the force of gravity upon the vessels, even without varicosities, produces certain common features notably deep pigmentation in both classes of cases. In women, the sexual history is all-important, including the order of abortions, miscarriages, and viable infants. In both sexes, the discovery of other lesions, and especially of characteristic cicatrices elsewhere, must be attempted. It will be remembered that the syphilitic ulcer tends to the shape of a circle or segment of a circle, and though occasionally existing as the sole lesion upon one leg, it is frequently multiple, or may involve both extremities, the pigmentation in old cases occurring chiefly at the periphery of the scar. Very extensive pigmentation about ancient cicatrices, especially disposed between irregularly defined scars, is truer of eczematous forms, as the pigmentation due to syphilis, though long-lived, is yet the more ephemeral. With periosteal nodes the diagnosis is clearer.

The treatment of eczema of the extremities does not differ from that described above, except as regards the indications to be met relative to support of the parts, thus counteracting the effect of gravity. Excellent results are here obtained by the use of the pure rubber bandage, applied immediately next the skin, especially in cases complicated by œdema, ulceration, and venous varicosity. The method of applying the well-known Martin bandage has been made generally

familiar to the profession; and for details respecting its availability in eczema of the leg, the reader is referred to the essay on Eczema and its Management, by Dr. Bulkley, of New York,¹ who is enthusiastic in its praises.

Such treatment, however, deserves only subordinate rank in comparison with the essential rest of the affected limb in the horizontal position. With a grave eczema of the lower extremity, such rest should be enforced; and patients whose limbs have proved rebellious under the rubber (for such there are) may thus be relieved. The local applications to be made meanwhile are those adapted to the particular features in each case present.

To a less degree, the same may be said of the arms. In these localities, it is rarely necessary to resort to elastic pressure. In all cases, however, a neatly applied bandage over the dressings will add the effect of pressure and support, and generally contribute to the comfort of the patient. A favorite dressing, in dry, papular, erythematous, and squamous patches of the disease, is applied as follows: The parts are first bathed with hot alkaline water for several minutes till the itching is relieved, and then carefully and thoroughly dried. The patch is then completely covered with a dusting powder, which, according to the indications of the case, is either emollient, astringent, or stimulating. Finely powdered tannin with French chalk; or even pure calomel; or bismuth, zinc, and starch, may be thus used. Over the whole, strips of Maw's surgical plaster are alternately and neatly superimposed in the manner some years ago recommended by Baynton. A snugly fitting rubber bandage encompasses the whole. The dressing is left *in situ* as long as it is comfortable, often for two or three days, when it can be removed. In properly selected cases, the itching is relieved, the infiltration reduced, and the patch soon loses its hyperæmic aspect. Occasionally no other treatment will be required.

Nor should it be forgotten that with care and patience, the starch bandage of the leg, the plaster-of-Paris dressing over folds of Canton flannel arranged so that it may be removed at pleasure in the manner in which it is used by some surgeons in the treatment of diseases of the joints, these and other immovable dressings may accomplish even more in obstinate cases than elastic apparatus.

For the exudative phases of eczema of the leg, the forms so often seen here of eczema rubrum, the gelatine medicated plaster meets the indications well. Morrow makes this by adding two hundred and fifty parts of glycerine to one thousand of gelatine, and two thousand of water medicated with ten per cent. of the oxide of zinc and one per cent. of carbolic acid. It may be left *in situ* several days and furnishes a smooth, elastic, and uniform coating.

Eczema of the Hands and Feet. [E. Manuum. E. Pedum.]

No more striking illustration of the significance of the etiology of eczema can be adduced than that to be discovered in the hands. By

¹ G. P. Putnam's Sons, N. Y., 1881.

these organs man toils to earn his bread, and the eczema they display is their protest against the rude contacts which are thus necessitated. Unfortunately, in too many of such patients the imperative necessity of bread-winning forbids consent to the best method of relief, viz., temporary disuse of these organs. The feet may or may not be similarly attacked, and for similar reasons. All forms of eczema are here seen, erythematous, vesicular, papular, pustular, and squamous, involving the entire surface, or limited to the wrists, ankles, interdigital spaces, palmar or plantar surfaces, or one or more digits on either face. The motions of the part are so free, that fissures are common and often exceedingly painful. The itching may be severe, and the parts of one hand or foot extensively rubbed, torn, or abraded by the other. Vesicles are more frequently encountered upon the more delicate portions of the skin, as over the dorsum and interdigital spaces, while in the denser palm and sole they are represented by sub-epidermic points from which by puncture a clear serous or cloudy fluid may be evacuated. Usually, however, in the regions last named, there is a dry, dead-whitish or hyperæmic, uniformly indurated and thickened integument, which may be fissured or produce such a tense inelasticity of the surface that the fingers are semi-flexed into the palm, or, much more rarely, the toes rendered considerably less extensible.

Circumscribed patches of eczema, with fairly defined outline, reddish in color beneath crust or scale, subacute in course, and accompanied by paroxysmal itching, are of common occurrence on the dorsum, and also in the palm or sole. In the latter situation, they may be traversed by one or more painful fissures, the same being true of the dorsum of the fingers and toes. Upon the back of the hand, these circumscribed patches are apt to assume an indolent course, improving temporarily under appropriate treatment, and becoming aggravated by every exposure to the causes by which they were first induced.

The long list of etiological factors which may here be efficient can scarcely be enumerated. Several have already been considered in discussing the causes of eczema in general. The influence of all articles handled in the trades, occupations, and professions of life, as well as of the action of toxicants and dyes, must be remembered. Thus printers, bakers, and masons suffer in the hands; and the wearer of dyed stockings, and coarse, ill-fitting shoes and boots in the feet. Because needle-women are often overworked, nervous, pale, and thin, their digital eczema, really due to the implements and stuffs they handle, has been erroneously attributed to their general condition. The poor seamstress starving for sunlight, nutritious food, and open air exercise, may return to her weary routine with her eczema quite relieved.

In the matter of diagnosis, it should be remembered that an eczema of the hands may be induced by the *Rhus toxicodendron*, the disease being then liable to a transfer by contact from the hands to the face and genital or mammary region. Scabies of the same region is in

this country much rarer than *eczema manuum*. In scabies the vesicles are firmer, more often unruptured, fewer, more isolated, more intermingled with crusts, pustules, and even bullæ, which latter are rare in *eczema*. The discovery of the parasite and a history of contagion will aid in removing doubt. Abundance of pustular lesions in young subjects is, however, according to Hebra, most commonly produced by the *acarus*.

The characteristic burrow made by the parasite, an irregularly curved, thread-like, beaded, or dotted line, about one-quarter of an inch in length, either running at a tangent from the unruptured vesicle or across its summit, is proof of scabies only second in value to the discovery of the parasites themselves. The occurrence of the eruption elsewhere on the body is also to be expected in the last named disease, with respect to which it should be remembered that the burrow may not be visible, and may be wanting when the parasites are present. Psoriasis of the palms and soles is always accompanied by the presence of patches in other parts of the body, whose typical characters should throw light on the local disorder. They are dry, non-discharging lesions, very rarely fissured as is the *eczema* of the hands, have a distinct contour, and are covered with more abundant and more lustrous scales. The scaling syphilodermata of the palms and soles occur early and late in the disease, and usually after a distinct history of infection. The lesions in syphilis are usually isolated, firm, deep infiltrations, circular in outline, with very sharp definition, and may be covered by dry, adherent, dirty-white scales, beneath which the brown and red hue of the persistent lesion can be discovered. Superficial or deep circular excavations of tissue are visible, single or multiple, with punched or ragged edges. The eruption is rarely, like *eczema*, accompanied by itching or discharge, but painful fissures may form. It occasionally affects the dorsum of the hand or foot, favorite sites of *eczema manuum*, but almost invariably has in such cases swept thither from the palm or from the sole.

In both syphilis and *eczema* of the hand, the right organ in right-handed laborers is invariably most involved, even when there is apparent symmetry of distribution of lesions.

The treatment demands, first, rest for the organs, and a simultaneous discontinuance of the exciting cause. In the trades, the result of the latter can be usually demonstrated by the patient, who notices the difference between the condition of the skin on Monday morning after a Sunday's rest, and that which was distressing on the preceding Saturday night. When practicable, protection during labor must be secured by the use of gloves, finger-cots, rubber-stalls, or bandages, neatly applied and retaining dressings to the part of the hand or foot which is the seat of the disease. For circumscribed, non-discharging patches on the dorsum of the hand or foot, the dressing described in connection with *eczema* of the extremities may be applied. When the nature of the labor performed is such as to render it impossible to secure protection of the hands or fingers in this way, something may be

accomplished in a few cases by directing that the hand be frequently dipped into a protective solution, or powdered during the hours of labor. Thus printers may dust their fingers with lycopodium, and those compelled to retain their hands in irritating solutions, can anoint these organs occasionally with an oily or fatty substance. Generally it may be said that an eczema of the hands is too frequently washed, and the ill effects of such practice are made evident not only in laundresses, but in mothers who personally attend to the dressing of young infants. The local applications made to each case may be those described above as suitable to each stage of the disease. When extensively involved, the hand should be carefully dressed, each finger being separately wrapped in soft linen rags smeared with camphorated or carbolized, pure or diluted, linimentum calcis in acute cases; or, later, with a bismuth, zinc, or mercurial ointment. The tarry compounds are here very useful; and the caustics more than ever needful when there are fissures. Protective flexile collodion plays an admirable part about the nails where irritable seams and fissures form with overhanging fringes of a torn and ragged epidermis, bordered with red. In all painful eczemas of this region the immersion, particularly at night, of the entire hand or foot in hot water should be practised, followed by careful drying and anointing with a salve or an oleaginous semi-liquid. This should be spread thickly upon pieces of muslin, wrapped neatly about each finger separately, and other affected parts, and the whole covered with waxed paper. The Lister protective gauze, or a pair of rather large undyed gloves which can be readily drawn over the whole, may be substituted for the former.

When the epidermis of the palm is greatly thickened, it should be shampooed at night with green soap, pure or in spirit, by the aid of hot water, followed by a salve containing either the white precipitate, ten to twenty grains to the ounce (0.66–1.33 to 32.), or the Wilkinson tar salve. For intractable cases, caustic potash, in the strength of twenty to thirty per cent. solutions, can be mopped well into the thickened palm, and followed by a salve-application. Van Harlingen suggests:

R. Hydrarg. ammoniat.	℥j;	1	33	
Adipis	℥ss;	2		
Sevi benzoinat.	℥vij;	10		
Ol. amygd. dulc.	℥x;		66	
Vaselin.	ad 3vi;	24		M.

For the fingers and hands, Unna's mull plasters fill very perfectly every requirement. These may be cut into strips, and applied with neatness to every digit. The zinc oxide, tar, and ichthyol mulls are all available for this purpose.

Eczema as it Affects the Nails [E. Unguium.]

There is nothing characteristic of eczema in its effects upon the nails. These horny plates participate in the diseases which affect

their matrices, and thus exhibit nutritional changes. There is, therefore, no eczema of the nail proper, but only an eczema of the digit by which the nail is affected. In well-marked cases, one, several, or all of the nails of either hands or feet may lose their polish, or become rough, punctate, furrowed laterally, and clubbed, or present an appearance suggestive of worm-eaten surfaces. They lose their uniformly smooth attachment beneath, and become tilted on their beds, with marked friability of their tissue. In such cases, an eczematous condition of the skin at the margin may be detected, where the usual redness, infiltration, and scaling, with a sensation of itching, point to the nature of the trouble. Rarely the nails are shed. The most misshapen will be succeeded by smooth and natural growths of nail-substance, if the disease of the matrix be completely relieved. The treatment, therefore, is the treatment of the cutaneous disease. Care must be taken to exclude ringworm of the nails, which end can be reached by microscopically examining the scales scraped from the nail-surface.

The zinc oxide and tar salves will be found most effective for the larger number of cases. Often the organs may be with advantage protected during the daytime by the combination of gelatine and glycerine described in the management of eczema of the extremities.

Eczema of the Tropics (Prickly Heat). [E. Solare. Lichen Tropicus, etc.]

Under these titles have been described a number of disorders, some of which are more closely related to the forms of sudamen described in connection with the functional derangements of the sweat apparatus, some of which are instances of papular eczema, associated or not with profuse sweating under the influence of high temperatures (solar heat, tropical climates, hard labor in the heated air of engine-rooms, etc.). The disease is aggravated by all external and internal sources of irritation, including alcoholic beverages, opiates, flannel garments worn next the skin, undue exertion in a heated medium, fatigue, and obesity.

Etiology.—The disease is more common in those subjected to rapid and intense fluctuations in the temperature of the atmosphere than in those long accustomed to a relatively hot climate. It is thus exceedingly common in the northern parts of our own country, where the absence of a regulating Gulf stream ushers the inhabitants suddenly from the rigors of a severe winter to the prostrating heats of summer. It attacks alike individuals of both sexes and all ages, being often particularly severe in the obese and in infants, whose delicate skins, no less than their bowels, resent sudden and severe thermal changes. It moreover affects equally those who are vigorous and the debilitated.

The disease is characterized by the occurrence of pin-point to pin-head sized vesicles, bright-red papules, vesico-papules, or the two as coincident and commingled lesions. They are exceedingly numerous,

and may in severe cases cover almost the entire so-called non-hairy surface of the body, though they may be much more limited in their diffusion. They are usually acuminate and discrete, though often very thickly set together. They are rapid of occurrence, but may, in consequence of persistence of the cause, be slow to disappear or recur repeatedly. Whether vesicles be or be not present, the affected region is usually bathed in sweat. The eruption is accompanied by characteristic sensations of tingling, pricking, and burning; its lesions, even though generalized, may be most vivid or most distressing about the trunk, axillæ, head, neck, or extremities. It may last for but a few days, or be severe for a week or more. It is unquestionably seen in the severest grade among fleshy Europeans, or Americans emigrating to tropical climates who are habitually ingesting alcoholic beverages in excess.

The local treatment of prickly heat is, in brief, that of the corresponding stage of eczema. Unguents are generally to be avoided, as the skin rarely tolerates them, and the same may be said of plasters and very cold baths. Baths or lotions, tepid, warm, or moderately cool, as the feelings of the patient may decide, to be most grateful, medicated with alkalies, bran, gelatine, or starch, will be found useful. After each, the skin is to be dried, not by rubbing, but by gently pressing dry cloths over the surface, and is then to be thoroughly protected by a free use of one of the dusting powders. When large tracts of the skin are involved, and general baths have been ordered, a package of "corn-starch farina" will often be found sufficiently well suited for such topical employment.

Lotions may also be employed, composed of lead, or lead and opium, or the black wash, or alcoholic and ethereal solutions containing camphor and glycerine in the proportions given when considering the subject of acute eczema. Modifications of the oleated lime-water are serviceable in severe cases, as, for example :

R. Ol. lini	f℥ij;	64	
Paraffin.	}	āā ℥ij;	64
Sapon. Castil.			
Ol. bergamii	q. s.;	q. s.	
Aq. calcis	ad Oj;	500	M.
Sig. For external use.			

This makes a demulcent creamy solution which often proves exceedingly grateful to the skin; and to it may be added the zinc oxide or dilute hydrocyanic acid, as may be required.

The general treatment of the patient is a matter of importance. The cause must be removed if possible. Withdrawal from the light, heat, and labor of the day; unstimulating food and drink, unirritating apparel, and rest, are of the greatest importance. The saline and acidulated beverages are usually acceptable to the palate, and useful if not drunk too cold. The chief value of Apollinaris water, lemonade, Vichy, and Kissengen, lies not in their action as medicaments, but as supplying the water demanded by the cutaneous loss through evaporation.

Prognosis.—The disorder may be trivial and severe, and last but for a few hours, or for as many months. It is usually relieved without difficulty, and often by domestic measures alone. It is most annoying and severe when complicated by the exudative process in other parts of the skin than the sweat-ducts and their immediate vicinage.

Prurigo.

Lat. *prurire*, to itch.

Prurigo is a chronic, exudative, cutaneous affection, commonly beginning in infancy or early childhood, and continuing through life, characterized by the occurrence on the extensor surfaces of the extremities and also on the trunk, of minute, pale or reddish, millet to hemp-seed sized papules, with extensive infiltration and intolerable pruritus.

Symptoms.—In this affection, pin-head to rape-seed sized, firm, whitish or reddish-white papules form, chiefly and primarily upon the extensor faces of the extremities, but from these localities extending gradually over the entire surface of the body. The itching they occasion is of the severest type.

The earliest symptoms are usually displayed in the latter portion of the first year of life, in the form of an urticarial rash, which persists and is finally succeeded by typical papules. The latter are minute, often sub-epidermic, and become rapidly covered with blood-stained crusts in consequence of the induced scratching. Then ensues a long train of symptoms, including pustulation, fissures, excoriations, dense infiltrations, crusts formed of exuded serum and dried blood, œdema, diffuse dark-brown pigmentation of the surface in large areas, and consequent adenopathy. Fully developed, the disease presents in general the same physiognomy in different patients of different ages. The lower extremities always exhibit the severest manifestations of the disease, especially the thigh and leg as distinguished from the foot; though the trunk, forehead, cheeks, neck, arms, and head may be also involved. The protected surfaces, as of the axillæ and groins, except as regards adenopathy, are free from the disease. The general health of the patient manifestly suffers from the insomnia and nervous agitation induced by the state of the integument. Emaciation, malnutrition, and cachexia are common sequelæ. The mental and moral tone of the patient thus harassed from early childhood throughout an entire life is necessarily profoundly impaired. Insanity and suicide are reckoned among its remote consequences.

Mild and severe forms of the disease are distinguished under the terms PRURIGO MITIS and PRURIGO FEROX, or AGRIA. Incessant care, judicious treatment, climatic influences, and the comforts of life commanded by wealth, seem to determine the difference between the two.

Etiology.—The disease occurs chiefly in Austria, few cases being recorded elsewhere. A patient was, however, exhibited at the International Medical Congress in London, whom both Kaposi and H.

Hebra recognized as affected with prurigo. Wigglesworth, Campbell, and others, have reported cases in this country. It is needful to remember that the term prurigo is here employed to designate the disease recognized by some authors as the "true prurigo of Hebra." It should never be confounded with pruritus, which, under various usages, may be the title of a mere symptom of a disease. Prurigo is more often encountered in the male sex; is never contagious; and never induced by lice; but, according to Hebra and Kaposi, may be grafted upon an hereditary predisposition. "Scrofula," tuberculosis, malnutrition, "misery," poverty, anæmia, and filth, are held to be severally favorable to its development. Unquestionably the superior resources of the poorest classes in America will long protect them from the incursion of this inveterate malady.

While the typical prurigo ferox, as described by the Vienna school of authors, is of such rarity that probably less than a dozen cases have been observed in this country, the opinion is gaining ground that the same disease with milder manifestations (prurigo mitis) is much more common here than has at times been believed. Two patients with severe prurigo treated by Hebra himself, found their way to the author's clinic with unmistakable symptoms of improvement after a residence in this country; and almost every expert in America has observed cases of the milder type.

Pathology.—Kaposi practically admits that, striking as is the clinical portrait of this disease, its anatomical features are indistinguishable from severe forms of obstinate papular eczema. The microscope reveals merely an hypertrophy of the various elements of the epidermis and derma, deposits of pigment in the corium, thickening of the root-sheaths of the hairs, enlargement of the cutaneous muscular elements (erectores pilorum), and a consequent atrophy of the integument which has long been the seat of the disease.

The hairs are thinner, the root-sheaths loosened, and young cells are collected in abundance about the follicles. Schwimmer calls attention in this connection to the fact that many prurigo nodules are pierced with a hair. Auspitz believes that the disease is in fact a sensori-motor neurosis without essential lesion. Riehl¹ regards it as a chronic form of urticaria. Morison² regards the prurigo papule as formed by an infiltration beginning around the upper plexus of vessels in the corium, which thence spreads to the papillary vessels, enlarging the papillæ, elevating the epidermis, which at an early stage becomes thickened above them. Finally the latter is penetrated, and within its strata a vesicle forms, containing serum, blood, and lymph-cells. The regions of infiltration about the hair-sheaths and sweat-ducts are regarded by him as secondary, and not as an essential part of the process. The color of the papule does not at first differ from that of the skin in the neighborhood, on account of the depth of the slight infiltration by which it is characterized, and for the same reason it can be distinguished by the touch before it becomes visible.

¹ Archiv. f. Derm. u. Syph., 1884.

² Amer. Journ. of the Med. Sci., 1883.

Diagnosis.—Remembering the extreme rarity of prurigo in America, it is to be distinguished chiefly from the various forms of papular eczema by the location of its lesions, the course of the disease, the age of the patient when it is first developed, the great extent of the eruption, and the uniform type of its lesions. In prurigo, also, the fingers and toes, flexor aspects of the extremities, and face are more or less spared. Under treatment eczema commonly yields at least in some portions of the skin while prurigo does not.

From pruritus, prurigo is readily diagnosed by its general physiognomy and history; its peculiar pigmentations and infiltrations; and by the special region chiefly affected. But, both diseases may complicate prurigo, especially eczema, which is then ordinarily of artificial origin. In pediculosis corporis, the parasites will usually be found upon the underclothing, while the lesions induced by the nails never form closely packed papules. There is something highly characteristic in the widely separated excoriations, puncta from wounds of the insects, and inflamed papules seen upon louse-bitten patients.

In scabies, the characteristic burrows of the parasites will usually be recognized, as also vesicular and pustular lesions. Urticaria can be mistaken for prurigo only in the earliest stage of the last named disease.

Treatment.—In Vienna, sulphur, tar, green soap, baths, and frequent anointings with oily and fatty substances have occasionally served to ameliorate the severe symptoms of the disease. Mercury, carbolic acid, boric acid, the diachylon, and zinc ointments may also be employed upon different portions of the skin when indicated.

The Wilkinson salve, representing a combination of tar, sulphur, and green soap, has proved of special value in many cases. Vleminckx's solution (q. v.), followed by hot bathing and corrosive sublimate baths one drachm (4.) to thirty gallons, has also been recommended. Internally, arsenic has proved valueless, while carbolic acid has occasionally seemed beneficial. Cod-liver oil and the ferruginous tonics with the bitters, will naturally be indicated in many patients suffering from malnutrition. A generous diet and tonic regimen are essential to the management of most cases, the patients afflicted with prurigo being usually found in the most wretched hygienic conditions.

Prognosis.—The disease usually persists through life. The most favorable conditions are those where the patient is quite young and surrounded by circumstances which permit of untiring provision for all his needs. Many authors to-day pronounce the disease entirely curable in the early years of life.

Acne.

Gr. ἀχμή, a point.

Acne is an inflammatory disease of the sebaceous glands, in which appear usually multiple, and painful, firm, reddish, pin-head to small nut-sized nodules, which may result in suppuration and the formation of cicatrices.

Symptoms.—Acne is probably the cutaneous disease of most common occurrence, not excepting eczema. The latter affection occurs upon the face as often as upon other parts of the body, and is yet seen upon the street with far less frequency. Eczema, however, is more distressing in its symptoms, and for that reason physicians are more often consulted for its relief, the disease thus acquiring a statistical preponderance. Acne is more tolerable, and therefore more tolerated and less treated, especially among the poor.

The disease is characterized in general by the occurrence of several and usually numerous, light red, dull crimson, or violaceous, pin-head to small nut-sized, circumscribed, ill-defined papules, nodules, tubercles, or non-projecting indurations of the skin, often commingled with the lesions of comedo and seborrhœa sicca. They are usually both slightly painful and tender, though upon this point there is a wide range of difference in different individuals, some patients tolerating with a surprising equanimity the most extensive invasions of the disease. The inflammatory process, which manifestly involves the sebaceous glands and periglandular tissues, may result in suppuration of one or several adjacent follicles, as a consequence of which coalescence occurs and pea- to large nut-sized, cutaneous and subcutaneous abscesses may form. In the larger number of cases, however, the suppuration is limited to the area of the individual nodule, every feature of the entire process being displayed at the same moment in an affected individual. Under circumstances of special aggravation, the disease may occur in acute forms, but it is commonly chronic; and such acute phases are usually accidents of the general process.

The disease occurs chiefly upon the face, but is seen also upon the neck, the back and front of the chest, the genitals, and the extremities, the palms and soles alone excepted. It is emphatically a disease of the early puberal epoch in both sexes, though occasionally seen in middle and later life. It usually lasts, when unrelieved, for years, being during this period subject to occasional exacerbations and remissions; but commonly spontaneously disappears as the full maturity of the body is attained. In severe cases, it leaves indelible traces of its ravages, in the scars where suppuration has been extensive. It occurs also in very mild and severe forms. The various terms used in the description of the forms of the disease refer chiefly to its external features.

Acne Artificialis.

Various substances, either applied topically to the skin or ingested, are capable of producing acneiform lesions. Among them may be

named tar, which may prove such an irritant, whether employed externally or internally, and, far more frequently, the salts of iodine and bromine after ingestion. Tar acne occurs both among workers in that substance, and in those subjected to its action for the relief of other cutaneous disease. Pin-head to pea-sized reddish-brown papules then form, at the apex of which is perceptible a minute blackish punctum, produced by the lodgement of a minute particle of the medicament in the orifice of a sebaceous follicle. Pustular and furuncular lesions are, however, also produced; and the same is true of bromic and iodic acne. In the latter, Adamkiewicz and others have demonstrated the presence of the drug in the contents of the pustular lesions. Chrysarobin and a number of other medicinal substances are capable of exerting a like effect.

Acne Atrophica and Acne Hypertrophica

are terms employed to designate merely the lesion-relics of the disease. In the former, there is complete atrophy of the gland-tissue, indicated by a minute sunken pit in the site of the former orifice; in the latter there is, in consequence of the periglandular exudation, a thickening of the tissues about the acini, and a projection from the surface of persistent, pea-sized, and indurated masses.

Acne Cachecticorum

includes the symptoms encountered in the subjects of struma, scorbutus, marasmus, chloro-anæmia, and tuberculosis. The lesions more often develop on the trunk and extremities than over the face, and are papulo-pustules, pin-head to bean-sized, particularly indolent, and remarkable for their livid, purplish, lurid-red, or violaceous tint. The lesions are rarely indurated; more often they are seen as softish, pus- and blood-containing nodules, sluggish of career, and leaving minute cicatrices. Their features are due entirely to the general cachectic condition of the subjects in whom they occur.

Acne Indurata.

This is a form of the disease less frequently observed than several others, but one which possesses certain distinct clinical features. Induration of the base of the acne papule may be noted in many cases of the simple form of the malady; but in others the glands seem generally to be distinguished as minute, very firm nodules, with no tendency whatever to suppuration. The surface of the skin is often without marked change in color or heat, the individual lesions indeed exhibiting at times an unnaturally whitish aspect. They are felt when the finger is passed over the surface as dense, often conical projections, occasionally painful, and giving to the touch a sensation suggestive of the nutmeg-grater. Comedones may be often distinguished intermingled with the papules. The disease, when well marked, is apt to be extensive, occurring with characteristic expres-

sion among brunette, hairy male patients well advanced to the twenty-fifth year. It is often generalized over the forehead, cheeks, chin, and the back of the neck.

Acne Papulosa.

Here the lesions are of a papular type, ranging in size from a millet-seed to a coffee-bean, whitish or reddish in color, and varying in the amount of firm induration at the base. They are evidently due to hyperplasia of the periglandular tissue, and are often commingled with pustules, papulo-pustules, and comedones. At the apex is often distinguished the blackish point characteristic of acne punctata, or a minute, greasy, yellowish-white spot, which represents the non-pigmented extremity of an inspissated sebaceous plug.

Acne Punctata.

In this variety, the acne papule is formed about a comedo. When examined, its apex is discovered exhibiting the characteristic blackish punctum of that lesion.

Acne Pustulosa.

This is probably the most frequently observed of all the forms of the disease. The lesions, as usual, are apt to be commingled with papules, comedones, and intermediate phases between the functional and exudative disorders of the glands. The pustules may be large or small, containing merely a droplet of pure pus, or, when a true furunculosis ensues, a teaspoonful or more of the same fluid mingled with blood and serum. This may be speedily evacuated artificially or accidentally, be absorbed, or remain for a long period of time in a species of cyst-like loculus, whence it can be finally expressed. In aggravated cases, two or more of these pustulo-furuncular depots may coalesce, forming nut-sized abscesses, or, not rarely, become united by fistulous tracts, through which there is free communication of the fluid contents of two or more chambers.

Acne Varioliformis

is the term employed, by the French especially, to designate the lesions elsewhere described as molluscum epitheliale, the name being selected in consequence of the resemblance of the latter to the umbilicated pustules of variola.

Acne Vulgaris

is a term applied by several authors to the composite eruption which is common to many clinical cases. Here the various lesions described above are associated, usually on the face and over the shoulders, each in several degrees of development, often in conjunction with the scars left by a prior eruption.

Etiology.—The causes of acne are in many cases exceedingly obscure and are probably numerous. It is common to describe the puberal changes in both sexes as a frequent cause of the disease, but one should be slow to regard a physiological crisis as a disease-factor. It can merely be asserted with safety that, with the growth of the hairs in both sexes at the period of puberty, there is an unusual activity of the sebum-producing function, and that this physiological is then the more readily perverted to a pathological activity. Needless to say that tens of thousands escape acne who survive puberty. The disease, however, is apt to appear first at this time of life, and, if not improperly treated, to disappear spontaneously when the full maturity of the body is attained.

Inasmuch also as there is a close physiological connection between the genital function and organs, and the appendages of the skin, not only in man, but in the lower animals (antlers of the stag, plumage of birds, etc.), it seems reasonable to conclude, *a priori*, that the disturbances of the former may be reflected to the latter. Many facts support such reasoning. The effect of castration upon the male of many animals is displayed in the appendages of the skin. In the same way, perverted sexual instincts and habits, or a poorly regulated sexual hygiene, and uterine disease (which is indeed often traceable to the causes just named) are often associated with an acne. To the same category belong the disturbances of the gastro-intestinal tract, including constipation, dyspepsia, malnutrition from various causes, and the struma, tuberculosis, etc., which are responsible for acne cachecticorum. The medicinal agents capable of producing artificial acne, either by ingestion or after external application, have been already named.

It should not, however, be concluded that any one of these conditions can be recognized as efficient in the majority of patients. Many cases of acne occur in perfectly healthy young people of both sexes. A careful record of cases of the disease, preserved upon blank forms in which is space for noting irregular performance of function in the other organs, will exhibit no ailment common to the larger number. In these, therefore, it is proper to believe that the causes of the disease are entirely local, such as suffice merely to induce primarily alteration in the consistency, quantity, or chemical character of the sebaceous secretion, and, either as a cause or result of this, an adenitis or periadenitis.

Apart from the local causes to which reference has been made, one should not forget that the use of cosmetics; neglect of soap, or the use of the cheaper and irritating varieties; excessive shaving on the part of the young man; friction from hat-bands; "frizzes," "bangs," and dyed veils; too frequent fingering of the face (Wigglesworth); improper compression of the neck by tight collars; and a long list of other agencies may prove the immediate or remote cause of the disease. It is believed that blondes of both sexes are the more frequent sufferers. But this observation may have been suggested by the circumstance that in the light complexions the symptoms of

the disease are more conspicuous and disfiguring. It certainly seems that young brunettes, with thick skins and abundant growth of dark lanugo hairs, furnish the most obstinate cases.

The distinct cause of acne is the mechanical irritation set up by the inspissation of the secreted contents of the gland. The next efficient cause is perversion of the glandular function, in consequence of which the secretion is changed in character.

Pathology.—The microscopical appearances are briefly those of an inflammatory process with exudation involving the peri-glandular tissue of the sebaceous glands and hair-follicles, and that about the common excretory duct. There is the usual vascular engorgement, the multiplication of protoplasm within and without the focus of the phlegmon, its metamorphosis into pus often mingled with blood, the destruction by suppuration of the sebaceous gland, and often the preservation of the hair-follicle though the latter may also be involved in the destructive process. According to Kaposi, there is no question that the first stage of the disease is always an anomalous performance of secretion or excretion in the sebaceous gland. Visible cicatrices rarely result, unless the destruction of the elements of the derma surpasses the original limits of the gland itself. Where suppuration does not occur, there is generally relief of tension by extrusion of the inspissated gland-contents and resorption of the plastic or fluid exudate in the periphery.

Diagnosis.—The typical facies of acne vulgaris is readily recognized by the characteristic features already described. The reddish papules, pustules, comedones, and “lumps” in the skin of the face of a young subject; the evident involvement of the sebaceous glands; the history of a chronic affection destitute of itching and quite unscratched; the occasional blood-crusts where lesions have been squeezed or incised, are all significant facts. The pustular syphilide of the face is not only to be differentiated by its share in the history of an infectious disease, but by the occurrence of characteristic crusts, its selection by preference, of the regions about the nose and mouth, its evolution in groups, and its sequelæ in the form of superficial or deep ulcerations. Nevertheless, and this is a matter of prime importance as regards diagnosis, simple acne is exceedingly common in syphilitic subjects. The iodide of potassium is so largely administered for the relief of syphilis, and in so large a majority of cases induces its artificial acne, that the latter eruption often precedes the evolution of the macular syphilide, and also with surprising frequency masks the latter by a commingling of lesions. Simple acne is common also among those who are veterans of syphilis. Acne does certainly at times resemble variola, and cases of the former have actually been mistaken for the latter. In most instances, the absence of fever and a brief delay will soon put an end to any doubt.

Treatment.—Acne is an entirely remediable disease in every case properly managed from the first. Scars of ancient ravages of the affection are, it is true, indelible; but even these are smoothed down

in the progress of time, so that they become yearly less conspicuous and disfiguring.

An important consideration, at the outset of treatment of a patient affected with acne, relates to any local or internal medication which has been previously employed. A very large proportion of all patients first claim the attention of the physician after ingesting drugs or making topical applications which have decidedly aggravated the original trouble. With or without the advice of others, such persons have often been engaged for months in swallowing the iodide of potassium, "red clover," and various nostrums calculated to "drive out" the disease; or in rubbing over the skin equally noxious proprietary substances. In every such instance the skilled physician should delay active treatment of the affection until the artificial acne has subsided, and the real condition of affairs can be clearly recognized. The patient should be directed to discontinue his or her former practice, to bathe the affected part in hot water at night, and after it is dried to apply any bland unguent. By these simple measures alone, many cases can be very greatly improved, and some completely relieved. Their simplicity should commend them to every reader of these pages. It is a good thing to know what not to do.

The constitutional treatment of acne rests for its success upon the discovery of the cause of the disease. Many cases certainly require no such management, being entirely relieved by local treatment only. A thorough investigation of the habits of living, food, diet, bathing, occupation, and bodily functions of the patient, such as is described in the chapter devoted to General Diagnosis, is essential at the outset.

Since dyspepsia and constipation are frequent causes of the disease, it is necessary to correct these when present; also any conditions of acidity of the stomach, distention of the transverse colon (Jewell), or marked anæmia.

Some modification of Startin's acid mixture, such as the following, will be found suitable for many cases:

R. Magnes. sulphat.	℥ij;	64	
Acid. sulphur. dil.	℥ij;	8	
Sodii chlorid.	℥j;	4	
Ferri sulph.	gr. v;	33	
Cardamom. tinct. co.	f℥j;	4	
Aq. dest.	ad f℥viij;	256	M.
Filter.			
Sig. A tablespoonful in a tumblerful of water before breakfast.			

Other cathartics, saline and alterative, will often prove serviceable. It is rarely found necessary to resort to arsenic, although this metal is highly recommended in acne papulosa, by both Duhring and Taylor. The internal employment of ergot in full doses for the relief of acne, as suggested by Denslow, has, without question, been frequently followed by excellent results. Cod-liver oil, iron, the mineral acids, and the bitters will prove valuable in chlorosis and

cachexia. The sulphide of calcium, in quarter of a grain (0.016) doses, is of decided benefit in obstinate cases.

Glycerine in teaspoonful to tablespoonful doses three times daily has also proved valuable (Gubler). The mineral waters, Hathorn, Hunyadi János, oftener Racoczy or Kissingen, a tumblerful before breakfast, are exceedingly valuable in cases of habitual intestinal torpor. When there is an acid form of dyspepsia, the rhubarb and soda mixture, or the acetate of potassium in half drachm doses (2.), will be serviceable.

Temperate gratification of the sexual instinct in a happy marriage is conducive to good results; and such a condition should generally be recommended as favorable for the future of young adults. Uterine disease should receive proper treatment when such complication exists; and this, far less by topical applications, than by attention to the general health, as the patients of this class are more often chlorotic young women with menstrual derangements, leading sedentary lives, or overworked at the school-desk, the sewing-machine, or the shop-counter. The diet should be carefully regulated, and the rules of hygiene enforced.

As to the former, hot breads and cakes, sweets, pastry, oat-meal, uncooked vegetables, and all alcoholic beverages should be scrupulously avoided; while fresh cooked meats, fish, and vegetables, fresh fruits, and tea and coffee in moderation should be permitted.

In all cases, whether previously treated or not, which have been purged of suspicion of an artificial element, the local treatment is of prime importance, and in the perfection with which its details are observed, lies the key to success. It is not the selection of one of the several remedies of the many advocated for the relief of the disease, nor yet the successive substitution of one for another to meet any transitory indications in each case, which conduces to the happiest result. It is rather the use of a single method of recognized value, and its skilful adaptation to the changing conditions of the disease.

It is first necessary to evacuate the contents of all pustules, to express from the summits of papules where are the orifices of sebaceous ducts, all densely inspissated plugs of sebum, and to remove any comedones which are present, by the aid of the comedo-extractor. For the purpose of opening the superficial and smaller purulent collections, the long needles used by gynecologists are decidedly preferable; and for the larger and deeper furuncular lesions, a bistoury with a delicate and very narrow blade. A slight degree of skill will here repay the operator. Piffard's acne-lance is useful in this same connection as is also Volkmann's spoon as modified by Auspitz, which may be employed in removing pathological débris. By counter-depression with the fingers the whitish-yellow or blackish orifice of the duct may be detected, and at that point precisely the needle or bistoury should be thrust sufficiently deep to insure the removal of pent-up pathological accretions. Should blood flow in droplets from any of these slight wounds, it is rather to be encouraged than repressed, as relieving the hyperæmia and engorge-

ment of the small peri-glandular phlegmon. In one or several sittings, all lesions requiring such interference should be carefully attacked, and immediately after each, preferably while the pus and blood are still oozing, the part is to be bathed for several minutes in water as hot as can be borne with comfort. For many reasons, the hour before retiring is preferable, though not always practicable, in treating such cases, as then a bland ointment can be thoroughly applied and permitted to remain till the following morning.

When one or several of such operations have completely relieved the skin of its engorgement and retained inflammatory products, a systematic use at night, of the spiritus saponis viridis with hot water, should be for a time practised. Let it be noted here, however, that many cases which do not require the minor surgical operation described above, should be from the first treated in this manner. As the face is the most common seat of the disease, it may be, for the purpose of description, considered as the affected part.

The patient is seated before a basin of water, as hot as can be tolerated with comfort, and with a pad of white flannel or soft sponge, bathes the face till the skin is thoroughly moistened and softened by the heated water and steam. From ten minutes to half an hour may be well employed in this way, and it is a fertile source of the improvement which follows. Then, while the face is still wet, all pustules which have formed are emptied, and a sufficient quantity of the spirit of green soap is poured over the flannel or sponge, and the face thoroughly scrubbed with it. Finally the surface is cleansed with a surplus of the water, carefully dried, and anointed with a sulphur ointment.

Some range may be observed in the employment of the two articles named. Thus the spirit may be diluted with cologne or rose-water, one half or more; or the soaps employed, in less imperative cases, may be the best toilet, Sarg's glycerine, or sulphur soap. The ointment, too, may be compounded by adding half a drachm to two drachms (2.-8.) of the flowers of sulphur to the ounce (32.) of cold cream or vaseline. In the morning, the face is to be washed with cold water.

This operation of steaming, soaping, and anointing, is to be continued, according to the severity of the case and the tolerance of the patient, nightly, twice in the day, or on alternate nights, till the face is free from papules and other inflammatory lesions. At this time it is usually unsightly, reddened, slightly tumid, and often moderately furfuraceous, but free from acneiform lesions. To the patient, it feels tense, slightly painful, and as if made of leather. This accomplished, the spirit, or other preparation of soap may be for the time discontinued. The improvement which follows is marked and speedy; and usually quite satisfactory to the patient. When this is reached, a wider latitude of treatment is permitted.

Gradually the hot ablutions may be withdrawn, and the use of lotions and ointments other than those containing sulphur, may be advised. The last-named substance, having the highest reputation

in the disorders of the sebaceous glands, is a constituent of many of the lotions thus employed.

Taylor¹ advises the following :

R. Sulphuris loti	℥iij;	12	
Camphoræ spts.	℥℥iij;	12	
Sodæ biborat.	℥ij;	8	
Glycerin.	℥℥vj;	24	
Aq. fontan.	ad ℥℥iv;	128	M.
Sig. Shake well and apply freely, leaving a thin film of powder over the face.			

Various combinations of sulphur with alcohol will be found useful. Thus Kaposi recommends a paste composed of :

R. Sulphur. præcip.	℥ijss;	10	
Spts. vin. rect.	℥℥jss;	48	
Lavand. spts.	℥℥jss;	10	
Glycerin.	℥xx;	11	M.
Sig. To be spread over the face and retained during the night. Or,			
R. Sulphur. flor.	℥ijss;	10	
Spts. sapon. virid.	℥℥v;	20	
Lavand. tr.	℥℥ij;	64	
Peruv. bals.	℥xx;	13	
Camphor. spts.	℥xv;	1	
Bergamot. ol.	℥v;	33	M.
Sig. To be applied over the face at night.			

Duhring recommends the following :

R. Sulphur. præcipit.	℥ij;	8	
Glycerin.	℥℥ij;	8	
Alcoholis	℥℥j;	32	
Aq. calcis	℥℥j;	32	
Aq. ros.	℥℥ij;	64	M.
Sig. Shake the vial before using.			

Occasionally the rumex ointment may be used with advantage as the basis of sulphur and other salves in acne. It is prepared according to the following formula :

R. Rum. crisp. rad.	℥ix;	288	
Adipis	℥℥vj;	192	
Ceræ flav.	℥℥j;	32	
Aq. pur.	q. s.;		
Wash and bruise the roots; boil for two hours; strain; evaporate to four ounces (128.); gradually add the wax and lard in a melted state; and stir till cool.			

The English hypochloride of sulphur, in ointments of the strength of those given above, and the sulphuret of potassium, half to one scruple (0.66–1.33) to the ounce (32.) of lotion or ointment are effective, but objectionable on account of their odor.

Various cosmetic ointments will be found useful in superseding those described above, as the case progresses. Among these may be named, the oxide of zinc, the subnitrate of bismuth, and freshly

¹ Amer. Clin. Lectures, vol. iii. No. 10, New York, 1878.

levigated calamine in the strength of from one-half to one drachm (2.—4.) of one or more of these substances to the ounce (32.) of cold cream, to which, as required, the tincture of benzoin, glycerine, oil of roses or bergamot, may be added in suitable proportion.

For mild cases an excellent lotion is obtained by adding a drachm each (4.) of the simple tincture of benzoin and glycerine to four ounces (128.) of distilled water, to which, where a more stimulating effect is desired an ounce (32.) of cologne water or rectified spirit of wine may be added, or a scruple (1.33) of the sulphuret of potassium. The following is the formula of the "Oriental Lotion," according to Hebra:

R. Hydrarg. chlor. corros.	ʒj;	4	
Aq. destill.	ʒiv;	16	
Ovorum iij albumen			
Succi citri	ʒiij;	12	
Sacchari	ʒj;	32	M.

The bichloride of mercury is very generally employed in the strength of from one-eighth to one-half a grain (0.008–0.033) to the ounce (32.) of emulsion of bitter almonds as a lotion; and the protiodide, biniodide, and ammonio-chloride of the metal are similarly applied in both lotions and unguents; the first two, in the strength of from five to ten grains (0.33–0.66) to the ounce (32.); the last-named, in the strength of from half a scruple to a scruple (0.66–1.33). One should be careful not to make use of the mercurials at the same time with a compound of sulphur, lest a chemical combination occur by reason of which the sulphuret of mercury is precipitated upon the skin and produces the appearance of comedo. Heitzmann highly recommends the solution of Vlemineckx.¹

Kaposi recommends also mercurial plaster applied on strips of linen in obstinate cases, for which may be substituted iodated glycerine, five parts each of pure iodine and the iodide of potassium to ten of glycerine, applied with a brush twice daily till from six to twelve applications have been made.

Van Harlingen's favorite prescription is one drachm each (4.) of the sulphuret of potassium and sulphate of zinc to four ounces (128.) of rose water. Fox applies half a drachm (2.) of chrysarobin to the ounce (32.) of collodion. Taylor advises five to twenty-five grains (0.33–1.6) of the iodide of zinc to the ounce (32.) of vaseline. Viel employs the uncertain unguentum Rochardi:

R. Hydrarg. chlor. mit.	ʒj;	15	
Iodi. puri.	gr. viij;	5	
Leni igne fuis adde			
Ungt. rosæ aq.	ʒiij;	64	M.

The use of caustics in acne, though recommended by several authors, should be discountenanced as quite needless. In extreme

¹ The formula is:

R. Calcis,	ʒss;	16	
Sulphur sublim.	ʒj;	32	
Aq. dest.	ʒx;	320.	M.
Coque ad ʒvj [192.] deinde filtra.			
Sig. "Vlemineckx's Solution."			

induration of the lesions, they may be rubbed with fine pumice-stone till the desired effect is produced.

The powders employed in the milder forms of the affection, are finely powdered sulphur, which may be freely dusted over the face; and those compounded, in various proportions, of starch, rice-flour, zinc oxide, and the subcarbonate of bismuth.

Finally Sherwell, Denslow, and others in this country report relief of acne in young male patients after the passage of the urethral sound and, in both sexes, by hot and cold water injections of vagina and urethra.

Acne Rosacea.

Acne Rosacea is a chronic disease of the skin, chiefly of the face, often developed from, or associated with, the lesions of acne vulgaris, characterized by hyperæmic maculæ, patches of diffuse, dull red erythema, telangiectases, inflammatory papules, or vegetating masses, which may attain the size of a hen's egg.

It is usual to describe three grades of this disorder, also named Gutta Rosea, or simply Rosacea, which is most often displayed upon the nose, though it may also affect the cheeks, lips, chin, and, rarely, the lateral regions of the neck.

Symptoms.—In the first grade, there is a more or less diffuse and uniform, pinkish or dusky, but transitory redness, involving the extremity of the nose and its contiguous parts, which may extend from this part in a somewhat symmetrical figure over the cheeks and chin. The parts give rise to little or no subjective sensation. Under the finger, the color disappears under pressure, the surface seems cool rather than hot, and the sebaceous glands are seen to be affected, as there is usually present either a seborrhœa oleosa or an accumulation of yellowish-white, moderately inspissated sebum in the patulous orifices of the gland ducts. When the redness has existed for some time, minute bloodvessels can be seen ramifying over the erythematous surface.

This disorder varies greatly with the general condition of the patient. At times, it may be scarcely perceptible; again after the stimulation produced by ingested food or alcohol, after mental excitement, a paroxysm of coughing or laughing, or exposure to external irritation, the lesions may be even conspicuously deforming. This may endure for months or years, and then disappear or be succeeded by the second stage of the malady.

In this second grade of the disease, the redness becomes permanent, the capillaries dilate passively and appear as conspicuous, tortuous, straight or anastomosing lines of reddish color about the nose, cheeks, chin, or forehead.

Firm, purplish-red, painless, pin-head to pea-sized nodules or papules often rise from the erythematous surface, and either display minute superficial and tortuous bloodvessels in the integument by which they are covered, or project from a base about which such a

telangiectasis has been very irregularly developed. The lesions are apt to be intermingled with those of *seborrhœa oleosa* or *acne vulgaris*. When fully developed, this stage of the disease, though generally not productive of marked subjective sensation, produces an exceedingly conspicuous deformity.

In the third stage, which is the most pronounced of the three, roundish, sessile, or pedunculated, lobulated or pendulous, firm, elastic, pinkish-red, bluish, livid, or violaceous vegetations, traversed by finer or larger networks of bloodvessels, slowly develop about the affected part of the face, chiefly the nose. These may be single or multiple, and, in the latter case, isolated, or so closely united as to be scarcely distinguishable from each other. The acneiform lesions seen in the second grade of the disease, may here also be apparent. In other cases, there is a uniform, symmetrical, and elongated hypertrophy of all the soft parts of the nose, which may thus attain colossal proportions. It is these consequences of *acne rosacea* to which the term *RHINOPHYMA*¹ has been applied.

The course of the disease is very slow, and in by far the largest number does not produce the exaggerated types of the second and third grades. The lesions may persist indefinitely as indolent symptoms of the malady in any one of its stages, or, in the cases where there has been no new growth of vessels or tubercles, proceed to spontaneous involution.

Etiology.—The first and second grades of *acne rosacea* are common in women either at puberty or near the period of the menopause, in those who are pregnant, or who suffer from utero-ovarian disease, frequent miscarriages, sterility, irregular performance of the menstrual function, and chlorosis. It is, however, seen in men of early and late adult life. In both sexes, it may occur in anæmic and asthenic states. In both, also, its association with dyspepsia and the immoderate use of alcoholic drinks, beer, wines, and spirits, is a matter of common observation. According to Kaposi, the rosaceous nose of the wine-drinker is bright red; of the beer-drinker, cyanotic or violet; of the spirit-drinker, smooth, supple, fatty, and dark blue. The new growth of vessels and tubercles, with the rhinophyma of the advanced grade of the disease, is much more common in men than in women. In those whose faces are bronzed by exposure to the weather, the telangiectatic condition of the cheeks rather than of the nose, is of frequent occurrence. Veteran sailors and soldiers are thus commonly affected. Persons who have frozen the nose or the cheeks on one or more occasions, are similarly liable to the telangiectatic development. Any externally or internally operating cause which tends to retard the capillary circulation in the superficial portion of the skin, is capable of inducing the result. It is at times conspicuously displayed in the mulatto.

Pathology.—In the first stage of *acne rosacea* there is merely passive

¹ For a full discussion of this subject, consult a valuable paper by Hans Hebra, in the *Viertelj. f. Derm. u. Syph.*, 1881, 4 Hft., p. 603, illustrated by cuts giving the gross and microscopical appearances of the disease.

hyperæmia. The circulation of the blood in the superficial capillary plexus of minute vessels is retarded. Persistence of this condition for long periods of time results in paresis of the capillaries, with their consequent dilatation and hypertrophy, phenomena which characterize the second stage, the sebaceous gland disorder being a complication of the process. In the third stage, the nodules are found to be composed of new-formed gelatinous elements, which become formed by organization. According to Biesiadecki, there are also dilatation and hypertrophy of the sebaceous glands, with dilatation, hypertrophy, and new growth of the superficial vessels, and enlargement also of those trunks which ascend from the corium.

Diagnosis.—Acne vulgaris is distinguished from acne rosacea by the absence of telangiectasis, and of the hypertrophic growths which characterize the developed lesions of the last-named disease. The tubercular syphiloderm is recognizable by its tendency to ulceration and crusting, and by the entire absence of telangiectasis. When the tubercles of syphilis are limited to the extremity of the nose, and are unusually small in consequence of the influence of treatment, they often degenerate into characteristic, split-pea sized, irregularly circular ulcerations, superficial in seat, and frequently isolated. They leave similarly shaped and sized, depressed cicatrices at the tip and neighboring parts of the nose. As the process is much more rapid than in acne rosacea, these lesions, considered in connection with the absence of telangiectasis, furnish the most significant diagnostic symptoms of the disorder, for they often occur late in the history of syphilis, in individuals of middle life, and in varying shades of a dull reddish color, circumstances particularly favorable for confusion regarding the identity of the two diseases.

A case of zoster from involvement of the superior maxillary branch of the trigeminus, with diffused redness of one side of the nose and efflorescence of vesicles over its tip and ala, certainly strongly resembles acne rosacea with pustular lesions. Here the painful character of the disorder, its limitation to one side, its transitory career, and its vesicular lesions are sufficiently characteristic.

Lupus vulgaris, like syphilis, when occurring upon the nose, is to be recognized by the tendency of its papulo-tubercular lesions to ulceration and crusting, the absence of vascularity, and the frequent presence of characteristic cicatrices. Unlike syphilis and acne rosacea, however, the history of lupus vulgaris usually extends to early childhood. Lupus erythematosus is yet more readily differentiated, as it is not only unaccompanied by vascularization and ulceration, but is characterized by scaling and symmetrical diffusion over much larger areas, commonly extending from the bridge of the nose well on to the cheeks.

Treatment.—As far as there can be said to be any internal treatment of acne rosacea, it is that of acne vulgaris, but in neither disorder can such be confidently described as effective in the dispersion of the local lesions. The treatment is that of the patient rather than of his disease. When alcohol has been in any degree productive of

the local effects, the use of spirits, wines, and beer is to be interdicted; but as regards confirmed rosacea, this will prove to be of but little avail. The disease, when resulting from spirit-drinking, may persist after five years of total abstinence.

The diet should be of the simple character described above as proper for the patient with acne. All imbibition of hot liquids, even tea and coffee in excess, should be restricted as tending to congest the bloodvessels of the face. Everything having the same result in the habits, occupation, or clothing of the patient should be, as far as possible, deprived of influence, as, for example, the wearing of tight collars and corsets, the working over hot fires, etc.

All gastro-intestinal sources of mischief should be also, when practicable, set aside. In acne rosacea, even more than in acne simplex, dyspepsia and constipation are conspicuously effective factors. Here it is well nigh imperative that there be a daily evacuation of the bowels.

The local treatment of the first grade of acne rosacea is substantially that of acne vulgaris. Stimulating lotions of green soap, alcohol, bichloride of mercury, or sulphur in connection with ablutions by hot water, are of the highest value. In addition, the various ointments containing sulphur, the mercuric oxide and iodides, and the continuous application of mercurial plaster should be employed if necessary.

Van Harlingen reports rapid results from the application, several times in the day, of a lotion composed as follows:

R. Sulphuris præcipit.	3j ;	4	
Pulv. camphoræ	gr. v ;		33
Pulv. tragacanth.	gr. x ;		66
Aq. calcis }			
Aq. rosæ }	āā f 3 j ;	32	M.

Fox, of New York, applies chrysarobin in traumaticine, half a drachm (2.) to the ounce (32.), but this should certainly be reserved for intractable cases, as it may have severe results. Even, however, after the production of these severe effects, the benefit secured may be appreciable for months after.

When the diseased condition is that of the second grade, the indication is the destruction of the superficial capillaries, as well as the removal of the other indications present. Hardaway, of St. Louis, was early in destroying the vessels by single or multiple puncture of each with a fine cambric-needle attached to the negative pole of a galvanic battery, with six to ten elements in the circuit. This is better than the knife, which has repeatedly failed. The operation may be regarded to-day as the established and effective method of removing all blemishes produced by dilated bloodvessels in this stage of rosacea. It is simple, readily executed, requires no anæsthetic, and is in many ways superior to all other methods, which now should be relegated to a second grade in the list as only to be proposed when, for any reason, electrolysis cannot be employed. The author has

operated in many cases, with the result of destroying the vessels completely without the production of a cutaneous cicatrix which, in the course of a few months, could be recognized by the unaided eye.

For details of this simple and elegant operation the reader is referred to the chapter on Hirsuties, where it is more fully described. For the cambric-needle may often be substituted with advantage a fine jeweller's brooch, annealed in the flame of a spirit-lamp.

The vessels may be entered in one or several places, and the operation repeated till the last thread-like evidence of their existence has disappeared. The number of cells brought into the circuit must be somewhat graduated to the requirements of each case and the locality of the skin operated upon. Fewer can be tolerated for the lip and alæ of the nose than for the root of it, the cheeks, or the forehead.

Next in value after this operation may be named :

Brushing the part cautiously with solutions of caustic potash, ten to thirty grains (0.66–2.) to the ounce (32.) of water; and the local use of pure carbolic, chromic, pyrogallic, and glacial acetic acids, acetum cantharidis (Taylor), iodide of sulphur, and the pernitrate of mercury. Before any of these, however, is employed, an effort should be made to produce exfoliation, by spreading over the part a plaster made of green soap. Unna's mercurial plaster-mull is similarly applied. Kaposi highly recommends the solution of iodated glycerine employed by him in acne vulgaris (q. v.), which is painted over the part eight to twelve times daily for three or four successive days, and immediately covered with gutta-percha paper.

Multiple scarification of all new growths after the manner of attacking lupous nodules; erosion with the dermal curette, or Braun's spoon; and surgical ablation or decortication of tumors by ligature and knife, are also available. After any destructive attack upon the diseased portions of the skin, the soothing lotions, fomentations, or ointments should be regularly applied.

Prognosis.—A favorable prognosis can be established only in cases where the disease is presented in its mildest forms. In those complicated by marked telangiectasis and hypertrophy, the results of treatment are not in the highest degree encouraging. In spite of the most energetic procedures, the *vis a tergo* of passive hyperæmia, involving often the deeper and unassailed bloodvessels, works its slow progress. For women, the future is in general more promising than in the case of men. With the most unfavorable prognosis, however, it is to be remembered that, after all, the disease is one of deformity rather than of physical discomfort.

Sycosis.

Gr. σῦκον, a fig.

Sycosis is an acute or chronic non-contagious inflammatory affection of the surfaces provided with relatively long hairs, in which the follicles and perifollicular tissues are involved in an exudative process, producing papules, pustules, tubercles, infiltrated patches, and crusts perforated by hairs.

Symptoms.—This affection, also termed *Mentagra*, occurs upon the face, involving one or both cheeks successively or simultaneously, the chin, upper lip, eyebrows, scalp, axillæ, and pubes. It is, however, almost always a disease limited to the region of the beard in men. In this respect it differs from acne and other disorders of the sebaceous glands of the face with which authors have sought to identify it, since not only is it as a rule strictly limited to the region of the beard, but the more hairy portions of the face of the patient are free from comedones, acne lesions, and other symptoms of a cutaneous disorder.

When seated upon the upper lip the first symptoms may be a nasal catarrh; elsewhere an eczematous attack may precede the onset of the disease. It may be ushered in with such acute symptoms as are found in the early stage of some of the forms of eczema, tumefaction accompanied by a sensation of heat and burning; but often a few isolated and indolent lesions whose presence scarcely awakens attention, are the first traces of the disorder. Soon may be recognized a larger or smaller number of discrete, flattened or conical, reddish and painful papules, tubercles, or pustules, whose anatomical seat is distinguished as the hair-follicle by the penetration of each by a filament of hair. These lesions may persist, and when typically discrete and visible at the part where the hair makes its exit from the duct of the follicle, have suggested the appearance of the surface of the fig, whence the disease has its name. They are apt to occasion a burning and at times a decidedly pruritic sensation when, being picked or torn open by the fingers, the pus concretes into a crust at the base of the hair. In severer cases these lesions while not coalescing, are so closely set together as to form a patch of continuous infiltration. These patches may be weeping or crusted; in the latter case the crusts are apt to be small and numerous, each being limited to the shaft of a single hair, and leaving when removed a minute crateriform excavation at the mouth of the follicle.

Involution of several lesions may be followed by fresh crops, and, sooner or later, distinct patches of disease are thus formed. When fully developed, the surface of the skin is reddened, swollen, infiltrated, and thickened; covered irregularly here and there with papules, pustules, crusts, scales, and often with excoriated surfaces. The disease is apt to lapse into chronic conditions, usually as the result of improper treatment; and in ancient cases the deformity is characteristic and totally unlike that produced by the vegetable parasites.

The hairs are usually fixed firmly in their follicles, but from those where active suppuration is in progress they may be plucked without occasioning much pain. In the cases which have been treated for years, the hairs are thin and decidedly lacking in vigor. There is no parasite to be discovered.

In typical neglected cases of long standing, where the region of the beard is involved, an important clinical feature is the symmetrical, general, and uniform involvement of the entire surface. The picture of one cheek is very nearly that of the other. The thin hairs scarcely serve to disguise the reddened, tumid, painful surface beneath, displaying the several lesions of the malady. Furuncles, abscesses, cicatrices, vegetations, and eczema of the ears may complicate the process. It is occasionally acute in its course, but more often chronic and rebellious. A typically chronic and untreated case of the malady rarely terminates by spontaneous involution.

The thinning of the hairs described above as a consequence of long persistence of the disease is far more characteristic of it than any distinct resulting alopecia. The latter, however, very rarely occurs but is then remediless. The same may be said of resulting cicatrization, which is one of the very rarest of consequences.

The absence of certain symptoms in this disorder is as significant as the presence of others. Adenopathy of the cervical glands is very rare, and when present should awaken suspicion of another malady. The disease when of longest persistence as to time, produces great unsightliness, but no deep-seated, subcutaneous, small- or large-nut sized nodules or tubercles, forming the "lumps" so characteristic of trichophytosis of the beard. It is a disease of chronic course, which may last for years and be characterized by relapses and aggravations, but it is entirely curable and it is only in neglected and badly treated cases that such persistence may be expected.

Etiology.—The exciting causes of the disease are obscure. It is encountered chiefly among men after puberty, and these in all social conditions and grades of health. It is non-parasitic, non-contagious, and not transmissible by heredity. Shaving is not known to produce it. At times, the immediate cause of the disease can be recognized, as when the upper lip is constantly irritated by the discharge from a profuse nasal catarrh. One such patient was seen by the author two years after Hebra first assumed charge of his case. In others again, all the causes of eczema may be invoked in explanation of the result.

A careful study of many cases, however, suggests that the hairs themselves are the aggravating causes of the disease and the sources of its peculiar obstinacy. In health the motions of the free shaft of the hair do not irritate the follicle in which it is set. In conditions of disease it is quite different. Each free hair operates like a lever upon the inflamed ring of tissue which encircles it on its escape from the follicle beneath, and this whenever by the touch of the hand, by the action of brushing, by currents of air, or by any agency whatever, a movement is imparted to it. Every such movement must

tease to a variable degree the surface beneath, already irritated; and when estimate is made of the hundreds of such movements to which each hair is subjected during a period of twenty-four hours, the relative importance of this apparently insignificant factor may be appreciated.

Pathology.—The disease is due to an inflammatory process, which, whether originally follicular or peri-follicular in its seat, may extend unquestionably either toward or from the follicle. Sometimes the extraction of the hair is followed by a drop of pure pus, which exudes from the follicle; and the root-sheaths of the hair are seen to be altered in consequence of the circumscribed follicular abscess. At other times, the follicle itself is free from disease, and the exudative process has evidently expended itself upon the peri-follicular or even the inter-follicular tissues, in which case the papillary layer of the derma exhibits the usual phenomena of hyperæmia, infiltration, and multiplication of protoplasm, with abundant vascular dilatation.

According to Robinson, the disease always begins as a peri-follicular inflammation, under the influence of which transuded serum penetrates the follicle. Maceration and eventual destruction of the root-sheath of the hair result with the ultimate production of pus within and without the follicle. The pus, when the hair remains in the follicle, finds its way to the surface by breaking through the epidermis near the hair; occasionally exit is obtained between the shaft and the follicle-sheath.

Diagnosis.—The most important consideration here is the distinction between the parasitic and the non-parasitic forms of disease of the region of the beard, upon which naturally the microscope finally decides. Still the clinical features of the disease are quite distinct. The non-parasitic form is recognized (*a*) by the greater redness of the involved surface; (*b*) by the extension of the disease in advanced cases to larger areas of symmetrical involvement; (*c*) by the more superficial character of the lesions, and (*d*) by the firm implantation of the hairs in their follicles in the earlier periods of the disease, and their relative freedom in all cases from fracture and relics in the form of stumps. The parasitic disease of the hairs is peculiar, in consequence of (*a*) decidedly less redness of the surface attacked; (*b*) its frequent limitation to a circumscribed area, or to several such, irregularly dispersed over a large region; (*c*) the peculiar “lumpy, tubercular, nodular, and uneven” characters of the patch, upon which Duhring has laid significant emphasis; and (*d*) the earlier loosening of the hairs in their follicles, as also of the occurrence of fractured hairs and stumps, exhibiting usually at the bulb unmistakable evidence of the nature of the disease. The malady is often mistaken for syphilis, chiefly on account of its deformity, but the pustular syphiloderm is very much less chronic in its course, is never limited for years to the face exclusively, and, when long persistent in one locality, is characterized by ulceration and the production of very characteristic crusts.

Eczema may complicate non-parasitic sycosis; but typical instances

of the two disorders may be recognized by the occurrence, in the former case, of a discharging disease not usually limited to the region of the beard, characterized by a more intense itching, and with marked absence of the papulo-tubercular lesions described above.

The lesions, moreover, in eczema are not invariably perforated by hairs. Erythematous eczema of the shaven face is reddish in color, and desquamates, after full evolution of the disorder, without pustulation.

Treatment.—In all cases of sycosis, the essential and important step is the continual removal of the hairs which, as indicated above, are the chief sources of aggravation of the disease. This is best accomplished by shaving, an act which, though often painful at the onset, is soon well tolerated by the sufferer. The majority of patients, however, object to the removal of the beard, far more on account of the consequent greater exposure to view of the deformity induced by the disease (then no longer partly masked by the hairs) than on account of the distress occasioned by the operation. To these objections there is but one response. The shaving is essential; the deformity is rapidly reduced after its successful initiation; the discomfort diminishes with each repetition of the process. For the disease in patients positively refusing to have the beard removed whose cases are so severe as to require it, the practitioner will do well to decline to be responsible. There is no limit to the tedious and obstinate course of the malady in the one case; and in the other, the results are speedily satisfactory, often in the course of a few weeks.

When there is much tenderness, pain, swelling, pustulation, or crusting, the hairs may first be clipped short, and a bland poultice of oil, elm-bark, or bread and milk applied. The practice in Vienna is to substitute for the latter strips of soft muslin or linen spread with diachylon ointment, and firmly bandaged over the cheeks, chin, or lips for from twelve to twenty-four hours, after which the razor is passed over the entire surface.

The integument which thus becomes visible, is usually a reddened infiltrated area, with pustules, papules, pustulo-papules, and some crusts dispersed here and there over it. This is best treated by very hot water lotions, pure or alkalized, after exit is given to all purulent collections; and then a bland ointment is to be applied at night, and a dusting powder in the morning. The subsequent treatment is largely that of eczema of equal grade of severity. In the more acute periods, the oleated lime-water, medicated with calomel or zinc oxide, half to one drachm (2.-4.) of either to the pint (512.) may often be employed with benefit; or for this may be substituted two ounces (64.) each of linseed oil, castile soap, and paraffine, to the pint (512.) of aqua calcis. Later, ointments may be used, particularly cold cream, to which either sulphur, the zinc oxide, or, less preferably, one of the mercurials may be added. Lotions of the mercuric bichloride, sulphur, alcohol, cologne water, or iodated glycerine, may be useful in stimulating any indolent patches of infiltration. The treatment of these is indeed that of chronic eczema.

In Vienna, epilation is successfully practised for relief of the disease; and, by many, severer methods are employed, including the use of green soap, tar, cauterization with acetic and even nitric acids. Erasure with the curette is to be named in the same category. It is possible that these measures have been employed in much more aggravated cases than those commonly observed here; but as the disease is certainly curable in a majority of cases without having recourse to these heroic methods, they are to be regarded in the light of a *dernier ressort*. It is not necessary in the immense majority of non-parasitic forms of sycosis, either to epilate or employ caustics. By repeated and frequent use of very hot water, and the milder stimulants, with constant shaving, the desired result is always within reach. Shaving should be continued for nearly one year after all traces of the disease have disappeared; and it is a point of some importance to substitute a continuously applied dusting powder for a fatty application, so soon as the skin will tolerate the persistent use of the former.

Van Harlingen advises for acute cases a wash composed of half a pint (256.) of rose water, to which one drachm each (4.) of precipitated carbonate of zinc and oxide of zinc in powder have been added, with two drachms each (8.) of glycerine and dilute liquor plumbi sub-acetatis. Veiel recommends a solution of pyrogallol, one part to fifty, for painting over the part affected, followed in the day by emollient cataplasms, and in the night by diachylon or weak tannin ointments. Sycosis of other portions of the body is to be treated as described for the region of the beard.

Internally, treatment is of minimum value, and when indicated, should be of the kind demanded by the wholly accidental constitutional condition of the patient. It is a matter worthy of special attention, however, to purge every previously treated case of all suspicion of an artificial element, by withdrawing for a proper time all internal medication. The disease is so disfiguring that many patients swallow the iodide of potassium, arsenic, and other deleterious drugs for months before consulting one who is wiser than they in these matters. Exposure of the face to dust, smoke, wind, and other sources of irritation should be for a time avoided.

Prognosis.—The disease is entirely curable, and will, in the large majority of all cases, either disappear entirely or be very greatly improved by judicious treatment. The latter requires the personal supervision of the physician and close attention to details.

Dermatitis Papillaris Capillitii.

Under this title Kaposi describes a disorder characterized by pin-head sized, isolated, or confluent elevations of the surface, with interspersed pustules, which finally form cicatriform plaques over which the hairs are either clustered in tufts or totally absent. The pilary filaments are atrophied yet firmly fixed in their follicles, and suffer elongation or fracture before withdrawal. The disease is encountered

chiefly upon the nucha, occiput, and vertex. Papillomatous vegetations, crust-covered, hæmorrhagic, and with a foul-smelling secretion, sometimes form, and eventually retract into a sclerotic tissue.

The author has seen and described two typical cases of this disorder,¹ and each concluded with the production of a keloid-like, cicatriform, irregularly shaped, but circumscribed elevation of the surface. This feature is that by which it specially differs from all other sycosiform disorders. The disease seems to be due fully as much to inflammatory processes in the subcutaneous tissues between the unyielding pericranium and the thick scalp as to the derma proper, and is not, therefore, strictly speaking, a dermatitis. Puncture, for example, of one of the pin-head sized pustules, commonly gives exit to the usual quantity of pus; but pressure upon the scalp in the periphery will at once be followed by the appearance of a still larger quantity of similar pus, which evidently is expressed from a circumscribed subcutaneous abscess. When by such pressure the abscess cavity is emptied, it slowly fills with venous blood, and produces a firm, semi-solid elevation of the surface, which subsequently undergoes sclerosis, and the starved hairs above behave in the manner well described by Kaposi. The papules and plaques are formed in a similar way, by the abundant supply of venous blood. The case of one of the author's patients (presented at the clinic) had been erroneously diagnosed by a surgeon as aneurismal in character. Puncture of all such semi-solid, cicatriform lesions is invariably followed by boozing of venous blood in abundance. The disease is chronic in character, particularly liable to relapse in crops of pilary or peripilary pustules and papules, and extends from nucha to vertex, curiously avoiding the frontal and temporal regions. Over the bald or partially bald keloid-like elevations there is seen, in some cases, a species of seborrhœa in the form of more or less adherent, fatty crusts, with occasional characteristic tufts of hairs. None of these hairs was invaded by a parasite, though repeatedly examined with the microscope with a view to such discovery.

The disease seems to owe its special character to the anatomical peculiarities of its location. It occurs preferably at the points where the venous supply of the scalp is not only greatest, but in most direct connection with the large vessels beneath, and where an inflammatory process in the derma or subcutaneous tissues invites with readiness a pathological afflux of blood. Such a focus, limited beneath by the dense calvarium, and with the relatively thick scalp above, readily undergoes organization and sclerosis, the subsequent behavior of the hairs and hair-follicles being an accident of the process.

Sangster (in a paper read before the International Medical Congress in London, 1881) described a pigeon's egg-sized tumor of the scalp, which Kaposi, who was present, recognized as a case of dermatitis papillaris capillitii.

The method of treatment to be employed in this rare disease can

¹ See a paper on this subject by the author, published in the Journ. of Cutaneous and Venereal Diseases, vol. 1., No. 2, p. 33.

scarcely be described as established. The affected surfaces are first freed from all subcutaneous abscesses by puncture and expression of the contents. Then the patch is washed with hot carbolized water, dusted with boric acid or iodoform, and a compress, moistened with an antiseptic solution, such as corrosive sublimate wash, rather firmly bandaged over the part. When the pathological fluids no longer form under the scalp, the patch is best epilated, and anointed with a salve containing one drachm (4.) of precipitated sulphur to the ounce (32.) of scented vaseline, which may also be kept constantly over the part. When crusts form, they may be removed by shampooing with green soap.

Generally, internal treatment is suggested by the constitutional condition of the patient, and this should often include cod-liver oil, the ferruginous tonics, and a roborant regimen.

Impetigo.

Lat. *impetere*, to rush upon.

Impetigo is an acute inflammatory affection of the skin, in which discrete, roundish, and acuminate or globoid vesicles, of the average size of a coffee-bean, form and rapidly fill with pus, which, being set free after rupture of the lesions, desiccates in characteristic crusts.

Hebra has distinctly stated that the pustular, cutaneous affection described by authors under the name Impetigo has no existence as an independent disease. Unquestionably a long list of disorders hitherto described under this term have been, in fact, forms of pustular eczema; and there are good grounds for believing that the symptoms detailed below are not those of a disease having a special identity. The reasons for retaining the name given above and for assigning to it certain peculiar eruptive features, are based upon the simple fact that the latter, probably in consequence of the operation in a similar way of similar causes, reproduce themselves again and again, so as to exhibit the same clinical picture in different patients. With a larger experience, it must be admitted that the convenience of the name, impetigo, as descriptive of a group of cutaneous symptoms, is more and more apparent.

Symptoms.—The disease is sufficiently common in practice, being observed chiefly in children and young adults of both sexes. In such patients, one to twenty or more isolated and often widely separated minute vesicles or vesico-pustules usually acuminate, appear upon the surface either simultaneously or in rapid succession occasionally after a slight access of fever. They are speedily transformed into split-pea sized or larger pustules, so rapidly, in fact, that often the early vesicular phase is not manifest, the lesions showing as minute pustules from the first. When fully developed, they are globular, yellowish-white in color, discrete, well distended with their puriform, rarely bloody contents, and projected clearly from the surface on which they rest. They may be surrounded by an erythema-

tous areola, or be simply superimposed upon an integument of unaltered color. They may persist as such or burst, and their contents dry into a yellowish crust resembling honey, or into brownish-tinted concretions which adhere with firmness to the superficial and circumscribed base, where a slight weeping can be determined. They are much more commonly observed upon the face, but are recognized elsewhere, always sparsely upon the trunk and extremities. The eruption is never in any sense generalized, its characteristic feature being the fewness of the lesions, which rarely exceed twenty in number, which are scarcely ever grouped, and which occur in capriciously selected locations. The subjective sensations are slight, and the eruption is more picked than scratched. It is common in dispensary and hospital patients; and since these are often the victims of neglect and the subjects of vices of nutrition, it has been considered the appanage of scrofula. But the disease is also encountered in well-nourished and rosy-cheeked children. In the latter, when well cared for, the eruption proceeds regularly to its natural resolution, while, in the former, it is prolonged and often aggravated, thus attracting to a greater degree the attention of a physician. The pustules are never umbilicated, never seated upon ulcers, never followed by cicatrices, and are incapable of transmitting the disease to another individual.

Etiology.—The causes of the disease are not clearly recognized, but there is some reason to believe that it originates exclusively in local irritation. It occurs rather at the age of childhood than in infancy and adult life, a period when the hands are first brought into habitual contact with the face; and these are, quite suggestively, the two sites of election. The lesions are very rarely scratched, more often torn with the nails in picking, so that the crusts may be a little blood-colored. There is reason to believe that the habit of picking the nose and other parts of the face and body with unwashed hands, is the sole source of the mischief. In later life the habit of refraining from carrying the hands to the face when the former are soiled, becomes instinctive. Before this instinct is well established, that is in childhood, the hands will convey to the head any particle of filth or dust with which they may have been brought into contact.

Pathology.—The lesions have been examined microscopically by Duhring and others, who have thus been able to establish clearly the purulent character of the contained fluid. Plainly, each is but a distinctly circumscribed and superficial pea- to bean-sized abscess, the sources of the pus being the horny layer of the epidermis.

Diagnosis.—In order to establish the identity of this affection, it is necessary to define its exact differences from eczema pustulosum. These are, first, the absence of infiltration of the tissues affected; second, the absence of itching; third, the failure of the lesions to form patches; fourth, the isolation and wide separation, each from the other, of lesions distinctly pustular; fifth, the large development and rather persistent character of individual pustules; and sixth, after involution of the latter, the evident termination of the disease,

which does not, as does eczema in many cases, progress to form a freely discharging and crusting surface, the pustular being but the initial stage of a distinct disease process. Manifestly, however, an impetigo of the sort described is not incompatible with an eczema which is often originated by less irritating causes.

In ecthyma, the pustules are much more formidable in appearance, in consequence of their size, depth, inflammatory base, areola, flat, dark, bulky crust, and erosive action upon the skin.

From impetigo contagiosa, the disease is distinguished chiefly by the absence of the evidences of contagion. The lesions of the latter are also, at first, strictly vesicular, not vesiculo-pustular or pustular, there is often umbilication, and the pus is auto-inoculable. The lesions may also coalesce.

Treatment.—The individual pustules are to be opened with a comedo-needle; the purulent contents gently removed by washing with tepid water and soap, and the floor smeared with any mild ointment, such as five grains to half a scruple (0.33–0.66) of ammoniated mercury to the ounce (32.) of cold cream, or the subnitrate of bismuth half a drachm (2.) to the ounce (32.), or the benzoated zinc salve.

Van Harlingen recommends, after the application of salve on bits of muslin, the covering of the whole with waxed paper. A dusting powder containing calomel may be substituted for the salve or employed afterward. The disease tends to spontaneous recovery, if the lesions are not irritated. When they are situated within reach of a child's tongue, which is constantly thrust out of the mouth to moisten them, they may linger obstinately, and require protection by flexile collodion.

Impetigo Contagiosa.

Impetigo Contagiosa is an acute, inflammatory, contagious disease, characterized by the formation of multiple, usually isolated, flattened or slightly umbilicated, roundish or ovalish, split-pea-sized and larger, vesicles, vesico-pustules, or blebs, which terminate by the production of yellowish, slightly adherent crusts.

The disease is also termed by Pontoppidan, *Pemphigus Acutus Contagiosus Adultorum*.

In 1862, Dr. Tilbury Fox observed and described the disease now under consideration, to which he gave the name by which it is most generally recognized to-day.

Symptoms.—The eruption, occurring in infancy, childhood, and early adult life, is often preceded by a febrile process, and appears in the form of rarely numerous, isolated vesicles, vesico-pustules, pustules, or bullæ, usually about the face, but also on the neck, buttocks, hands, or feet. In severe cases these are surrounded by an areola. The lesions are roundish, flat, have the average size of a split-pea, and become covered in the course of a few days with dry, granular, straw-colored crusts, which adhere closely to the slightly reddened base on which they rest. Very superficial erosions are to be dis-

covered beneath, which become rapidly covered with epidermis. They occasionally coalesce, and their complete involution requires from a week to a fortnight. When of the dimensions of bullæ, a pseudo-umbilication may be observed at the apex, produced solely by flaccidity of the roof-wall, which is never tied down as in variola. The contents of the lesions are inoculable and auto-inoculable, the disease thus spreading from one member of a family to another, and also from one part of the body of an individual to another. The mucous surfaces are said to be occasionally invaded. The subjective sensations are mild, the itching being rarely severe. The disease runs a tolerably definite course, being usually at end in a fortnight. It may recur. Kaposi states that it is at all times accompanied by submaxillary adenopathy.

Etiology and Pathology.—Kaposi, Piffard, and Geber have all described a microscopic fungus which they discovered in the crusts of the disease, but neither they, nor Tilbury Fox, nor observers who have succeeded them, have ever been able to demonstrate the existence of a parasite in the contents of the lesions. Plainly, a parasitic vegetation on the exterior crust can have no etiological significance in this connection. The eruption often occurs during convalescence from a more or less actively contagious disease. The antecedence of some fever in many cases is admitted by all observers. Duhring and Fox himself have seen it follow vaccinia; and the former admits that some connection between the two seems probable. The author has seen it occur typically in four children, each of whom was convalescent from varicella; and in one interesting case, that of a young woman convalescent from confluent variola, the lesions sprang from an integument where the pigmentation of the scars of the last-named disease had not begun to disappear.

Stelwagon, in 1883,¹ making a new study of the subject, reports only six cases out of eighty-eight observed by him following vaccination, and concludes that the disease is non-parasitic, but an acute specific contagious exanthem, with cutaneous lesions pursuing a definite career.

Pontoppidan, in 1885, found, as had many before that date, only epithelial cells, blood-corpuscles, and detritus in the crusts, never any indications of a parasite capable of explaining the etiology of the disease.

Dewèvre² reports a number of successful inoculations and auto-inoculations practised with the contents of the vesico-pustule, with finely powdered impetiginous crusts and with the products of scraping the subjacent erosion. He reports finding reticulated mycelial tubes of the thickness of three thousandths of a millimetre in the rete mucosum beneath the lesion.

In 1884, the author succeeded in producing an almost typical vesico-pustule upon his left forearm by inoculation, all due precautions observed, with the moistened débris of crusts. This was done

¹ Med. Recor 1, Dec. 22, 1883.

² Arch. de Méd. et de Pharm. Mil., Sept. 16, 1885.

in the Dermatological Clinic, the crusts being taken from typical lesions upon the face of a young girl inoculated while under observation from the lesions of exactly similar character on the face of her twin sister. The lesion on the forearm produced a characteristic crust, which in seven days was also used for the inoculation of two students then present at the Clinic, in one of whom there was no result, and in the other an abortive lesion.

The disease is contagious, and its lesions inoculable and auto-inoculable; but whether it be a specific exanthem, or due to a purely local parasite, or other cause, must be regarded as an undetermined question.

Diagnosis.—Impetigo contagiosa is distinguished from impetigo by its frequent pyrexie symptoms; its flat, yellowish, superficial, friable crusts; its vesiculo-bullous rather than distinctly pustular lesions, and its contagiousness. In pustular eczema, there are itching, infiltration, profuseness of discharge, indefiniteness of duration, coalescence of lesions, and extensive bulkier crusts. In varicella, the lesions are small, much more widely distributed over the body, and are vesicular only, never bullous. In pemphigus and herpes iris, the seat, character, and period of evolution of the lesions will suffice to establish the diagnosis.

Treatment.—The crusts are removed and a salve applied consisting of cold cream or vaseline with from five to ten grains to the ounce (0.33–0.66 to 32.) of ammoniated mercury.

Impetigo Herpetiformis.

Impetigo Herpetiformis is a cutaneous disease of women, frequently complicating the puerperal state, characterized by the occurrence upon the skin and mucous membranes of concentrically grouped pustules, and by a febrile condition which usually terminates fatally.

Symptoms.—Our knowledge of this rare disease is limited to the reports of thirteen cases observed in the Vienna clinic by Hebra and Kaposi; one in New York, by Heitzmann; one by Pataky; and a few scattered cases recorded by others. Of the Vienna patients, twelve were women, and these usually in the puerperal state. Pin-head sized pustules, usually closely packed together in groups, filled with an opaque or yellowish-green fluid, are discovered upon the surface of the groins, navel, axillæ, breasts, and other portions of the body. A dirty brownish colored crust is formed by the rupture or desiccation of these lesions, and about this, single, double, or triple concentric circlelets of new and similar lesions appear in succession, each series undergoing a similar process of involution. The eruption thus extends till the circlelets from different foci of origin unite; and extensive areas of the skin are involved. Beneath the crusts the skin is reddened, infiltrated, smooth, and covered with a new epidermis, moist as in eczema, or exhibiting a denuded corium. It is never in a state of ulceration. In the course of three or four months, the eruption is well nigh universal, the skin being swollen, shining,

and crust-covered, or seamed with excoriations here and there surrounded by circlets of pustules. The lingual mucous membrane exhibits grayish, centrally depressed patches, well-defined in contour. Alternate rigors and febrile accesses mark the periods of recrudescence when new pustules form. Delivery seems to have no favorable effect upon the course of the disease occurring in pregnant women. An endometritis with peritonitis was discovered, post-mortem, in a single case. Two women only, of the thirteen Vienna patients, survived; and one suffered from a relapse after several weeks of improvement.

The etiology and pathology of the disease are necessarily obscure, having in view the relatively small number of reported cases. Duhring describes a much milder malady of similar type, occurring in women not pregnant, and has latterly included impetigo herpetiformis in the list of diseases covered by the title, dermatitis herpetiformis; but Kaposi, in the last edition of his treatise, refuses to admit any such reduction of impetigo herpetiformis to a class of other maladies. Robinson also has described a case supposed to represent one of the mild manifestations of the disorder. Kaposi is inclined to associate the disease with a pathological condition of the uterus. Heitzmann thinks it related to pemphigus. Besnier and Doyon conclude the disease to have a septicæmic origin.

The diagnosis of the disease is between herpes, dermatitis herpetiformis, and pemphigus.

In herpes, the purely vesicular character of the lesions and the cyclical career of the disease indicate its nature. In dermatitis herpetiformis there is commonly a distinct multiformity of lesions; and the subjects of the disorder are not, in such great preponderance, pregnant women. In pemphigus, the size of the bullæ, and their distribution in other than concentric groups, will indicate the character of the disease.

The treatment is conducted on general principles, including antipyretics, and the local employment of alkaline, or carbolated baths; starch and other dusting powders; anodyne, carbolated or simple salves; and a mixture of plaster and coal-tar. The uterus should be relieved of its contents.

The prognosis is necessarily grave.

Ecthyma.

Gr. ἐκθύμα, a pustule; ἐκθίω, I burn out.

Ecthyma is an inflammatory disease of the skin characterized by the formation of few or many, large, discrete pustules, implanted upon a dense, deeply situated base, the pus of which dries into dark colored, firm, bulky, and attached crusts, beneath which there may be superficial ulceration and resulting scarring.

Symptoms.—Attention has already been directed to the position of Hebra in denying the existence of impetigo and ecythma as distinct diseases. Ecthyma is, however, entitled to separate consideration, for

the clinical reasons whose importance appears after a careful study of a few typical cases.

The disease is characterized by the occurrence of one or several, roundish, bean- to filbert-sized, yellowish or reddish pustules, which are the result of a distinctly circumscribed, inflammatory process, limited to the base of each lesion, or extending from it at the periphery in a diminishing hyperæmia. This process is distinguished by the formation of an indurated phlegmon at the base of the pustule, which is converted into a loss of tissue involving the corium. The purulent or sanguinolent contents of the lesions dry in dark colored, thick, rough, adherent crusts, the color being somewhat dependent upon the quantity of the blood with which they are commingled. On the removal of this concretion, a minute, shallow, and circular pit is discovered, invading the true skin to various depths, and lined with a tenacious, puriform, and often blood-stained product. When carefully wiped clean, this solution of continuity, which really constitutes a minute ulcer, is seen to have a floor reddish or grayish in color, and indolently granulating.

The pustules may be acutely or indolently developed, and be, when multiple, coincident or successive. They occasion rather a sensation of heat, burning, and pain, than of itching, the latter being usually more distinct when the lesions are healing under their crusts. Their formation may be preceded by mild general pyrexia. They occur at all ages and in both sexes, usually upon the extremities, but also upon every portion of the body.

Etiology.—The causes of the disease are practically those of eczema and dermatitis (traumatism, heat, scratching, parasites, etc.), but these usually operate in excess, or in subjects affected with other diseases, such as anæmia, asthenia, struma, variola-convalescence, and menstrual disorders. Filth and neglect are most common aggravations; in other words, that circumscribed cutaneous ulcer will be the angrier and the deeper, which occurs in the victim of any depressing disease, whose skin is scratched with nails begrimed with dirt, and is covered with the effete products of the excretory processes. The pus thus produced may be in various degrees inoculable and auto-inoculable, as is the product of many inflammatory processes of similar grade.

Pathology.—The pustule of ethyma differs in no respect pathologically from the pustule of eczema or the pustule of impetigo, save in the severity of the exudative process by which it is produced, and in its limitation to the exact site of external irritation. By the extension of that process to the corium, there is an actual loss of some of the elements constituting the papillary layer; and the result is a cicatrix, which contracts as it grows older, and is, in milder cases, finally barely visible as a minute cicatriform punctum. One who frequently examines the skin of the entire body with care can usually detect the ancient sites of these lesions by their indelible though insignificant relics.

Diagnosis.—Ethyma is liable to be confounded with the other pustule-producing exudative affections, but as the distinction between

them is largely artificial, and based upon the severity of the inflammatory process, there is small danger in the consequence. Kaposi well expresses the truth in his suggestion that there can be but little objection to the employment of the term ecthyma when it is desired to characterize precisely the pustular grade of any cutaneous inflammation at a given time. The pustules of variola are "ecthyma-form," and many of those seen in syphilis possess similar characters. But in each the history of the general affection should throw light upon the identity of the cutaneous disease. In the latter, moreover, the ulceration at the base of the lesion exhibits the pronounced features of the syphilitic ulcer in its secretion, floor, edges, base, crust, and career.

The crust, in particular, of the flat pustular syphiloderm has the rupioid conical appearance which suggests the shell of the oyster, and its underlying ulcer is larger and deeper than in ecthyma. In the furuncle there is usually a central core; in impetigo, the pustules are not deep-seated, and there is no ulceration at the base. In impetigo contagiosa the crust is superficial, yellowish, firmly adherent, and the lesions are more numerous.

Treatment.—The general treatment of patients affected with ecthyma is a matter of some importance. A proper regulation of the food and hygienic surroundings is not to be neglected. Tonics are frequently indispensable, including iron, quinine, and strychnia. The destruction of any pediculi, and the cleansing of the skin by soap and water will often be sufficient to effect a great change. This is well illustrated in hospital practice, where the little patients rapidly improve after a bath, followed by inunction with vaseline, and a few substantial meals of a nutritious character. When the lesions are abundant, the treatment is in general that of pustular eczema. Crusts are to be removed after soakings with oil or fat; and the floors of the former pustules, after washing with carbolated water, should be dressed with an ointment containing ten to fifteen grains (0.666–1.) of the ammonio-chloride of mercury to the ounce (32.) of lard. If the minute basal ulcers are sluggish, they may be, after careful cleansing, touched with a small swab dipped in a solution of the bichloride of mercury in the tincture of benzoin, one grain (0.066) to the ounce (32.) Carbolic and boric acids or iodoform may be employed for the same purpose. For the salve mentioned above may be substituted one containing ten grains (0.66) of calomel, or half a drachm (2.) of the subnitrate of bismuth to the ounce of salve basis.

In every case of the disease it is desirable to inquire whether any medicines have been ingested prior to the appearance of the eruption, since these may be responsible for the lesions.

The prognosis is always favorable.

Pemphigus.

Gr. πέμφιξ, a bladder.

Pemphigus is an acute or chronic disease of the skin, often characterized by febrile and other symptoms of constitutional disturbance, accompanied by the production of a series of pea- to egg-sized bullæ, irregularly distributed over the surface, and distended with serum or blood.

Symptoms.—The cutaneous lesions in this disease are usually preceded by febrile symptoms; and the disturbance of the economy is declared in cardiac, respiratory, and gastro-intestinal derangements of function. The fever may be continuous, remittent, or inter-mittent, and is usually exaggerated just before the appearance of a fresh crop of blebs.

The eruption first appears in reddish maculæ of rather vivid hue, in the centre of each of which appears later a whitish elevation of the epidermis suggesting a wheal. Either upon these or unaffected points of the skin, tense, well-rounded bullæ subsequently form, varying in size from a pea to a hen's egg and even larger, and in number from three to six only, to a hundred and more. They are usually irregularly distributed (PEMPHIGUS DISSEMINATUS), but may be clustered in groups, or very rarely be found the younger encircling the older lesions, so as to form a circinate appearance (PEMPHIGUS CIRCINATUS); their contents are serous, bloody (PEMPHIGUS HÆMORRHAGICUS), or later purulent, with color corresponding to these fluids. Whether ruptured or not, the involution of the lesion is accomplished by desiccation and crusting, the crusts being usually found to contain blood, pus, epithelial debris, and the exudate from the base of the bleb. Beneath such a crust a new epidermis forms, which is usually violet, purplish, or bluish-red in color, and, later, displays a brownish pigmentation which may for several weeks survive the disease.

Occasionally the affection occurs with very mild and even insignificant phenomena (PEMPHIGUS BENIGNUS). There may be no fever, and a very few blebs appear; in some cases but a single lesion can be seen (PEMPHIGUS SOLITARIUS). In other instances, the fever is intense; the eruption abundant; the skin œdematous, painful, pruritic, excoriated, and the underlying lymphatic glands enlarged. This general condition with exacerbations and remissions may persist for months, and the eruption then disappear never to return or to recur, as it often does, in the future.

The term PEMPHIGUS VULGARIS is applied to the more common clinical forms of the malady, but it is also employed generically by many authors to include all varieties of the disease. PEMPHIGUS DIUTINUS designates that pemphigoid eruption in which the characteristic lesions follow each other with rapidity, fresh bullæ appearing each day. Fortunately, all forms of the disease are relatively rare.

The lines technically drawn between many conditions of disease are

quite artificial, however useful and necessary for systematic study and classification. Clinically, many of these distinctions disappear. This is especially true of the varieties of pemphigus. Between the benign processes just considered and the grave form of pemphigus foliaceus described in another chapter, several intermediate gradations can be observed, and even the most benign may at times unexpectedly assume the most malignant phases. PEMPHIGUS MALIGNUS is a name given generally to those intermediate varieties of the disease, most of which are distinguished by persistent and prostrating fevers; cachexia, especially in infants; the occurrence of diphtheritic patches upon or about the lesions, with infiltration of the derma and slough of its superficial layers; or extensive crusting, and even subsequent ulceration. A form is described by Hebra and Kaposi, in which vegetations and fungosities rise from the base of the blebs. PEMPHIGUS PRURIGINOSUS is another grave form of the disease, in which the lesions give rise to an intense pruritus, under the scratching induced by which they are torn, excoriated, and commingled with the crusts and exudations of an artificially engendered eczema. Several of these malignant and intermediate forms may terminate fatally.

In all varieties of the disease, the lesions may be exhibited upon the mucous membrane of the accessible outlets of the body.

An important distinction, which has been established only within late years, should be made between acute and chronic pemphigus.

Acute pemphigus occurs in adults, children, and infants, more frequently among the very young. It may be epidemic in hospitals and other public institutions. With or without an antecedent febrile movement, the blebs may appear before birth or within a fortnight after, in infants which are either well nourished or cachectic, more often the latter. In favorable cases, the evolution of the disease is completed in three or four weeks. Any part of the body may be affected, but, what is important from a diagnostic point of view, the face, hands, and feet are often exempt. The conjunctiva and mucous lining of the mouth may, however, become implicated. In some cases the pemphigus may be of hæmorrhagic type. Underneath the lesions, the rete is exposed, and has a reddish, glistening look. The termination may be fatal. Acute pemphigus of adults is still rarer. As in the case of infants, there may be marked febrile antecedents and systemic disturbance. The eruption of pea- to large nut-sized bullæ may be sparse or abundant, covering in cases the entire body, and attacking the mucous surfaces. The vesicles or bullæ may be tense, flaccid, and filled with clear, serous, or puriform contents. Beneath may be seen a smooth, raw, mucous layer or a diphtheritic exudation. According to Weyl, Bulkley's Herpes Gestationis is an example of acute pemphigus adultorum.

Chronic pemphigus exhibits the greatest variation both as to its symptoms and the period of their efflorescence. There may be a week or month of immunity, followed by benign relapses, or by malignant and rapid recurrences. The bullæ may form upon an unaltered or deeply hyperæmic skin, in all sizes from a pea to an

orange, invading the skin and mucous surfaces including the vagina, the lesions at the base exhibiting the several features described above. The eruption is rarely generalized, and throughout not more than half a dozen lesions may be at any one moment visible upon the surface of the skin. The contents may be removed by evaporation, absorption, or rupture, leaving a crust whose color is largely determined by the contents of the bleb.

Etiology.—The causes of pemphigus vulgaris are so obscure that they may be said to be unknown. The disease is more frequently encountered in infancy and childhood, because, it would seem natural to conclude, the powers of resistance at a tender age are inferior to those of a maturer epoch. The disease is in general observed in debilitated patients, who are variously described as suffering from “nervous prostration,” “mental worry and exhaustion,” “neurasthenia,” “general debility,” visceral disorders, and impairment of nutrition. Occurring in a vigorous, rosy-cheeked, strong-limbed adult, the disease would certainly be regarded as a curiosity. It is, therefore, safe to conclude that those states in which there is marked impairment of bodily vigor are particularly favorable to the development of the disease.

Kaposi relates one case in which the disease seemed to be inherited, as the patient's mother, sister, mother's brother, and some of the children of the latter had been affected with the malady. While, however, this author admits such association of nervous disorder with the disease as occurs in hysteria and pregnancy, he concludes that there is little if any etiological significance in the fact. I have, however, observed one case in an adult where pemphigus of typical appearance occurred after mental depression, which was so greatly increased by the appearance of the exanthem as to lead to suicide.

There is good reason to believe that, at least in some of its forms, the disease is contagious. The bullous lesions, however, seen in syphilis, lepra, and other similar disorders, should not be here included.

Pathology.—Kaposi and Weiss found anatomical changes in the spinal cord of but one out of nine fatal cases of pemphigus. In this there was diffuse sclerosis, but the case was complicated with cancer. Järisch discovered swelling of the processes of the ganglion-cells and interstitial fibrous deposits in a similar case. Déjerine and Léroir found changes in the peripheral nerves due to degeneration in a case of pemphigus.

The contents of the bullæ of acute pemphigus were found to contain bacteria by Gibier in 1882. The microbe recognized by him was, when mature, arranged in chaplets, each containing a series of joints. His observations were confirmed by Vidal and Roeser. Riehl in 1883, discovered both conidia and spores in the layer of epidermis beneath the lesions of an infantile pemphigus. Demme,¹ in 1886, found cocci both in the contents of the bullæ, and in the blood.

¹ Viertel f. Derm. u. Syph., 1886, p. 636.

On the other hand Thin, of London,¹ after full trial of all methods of staining and cultivation now employed, had entirely negative results in his attempts to discover microorganisms in the contents of the bullæ of pemphigus.

Diagnosis.—From what has preceded it will be inferred that pemphigus is a name given to a disease, and not merely to bullous lesions upon the surface of the skin. It is of some importance to remember this fact, as several authors have used the term in a purely descriptive sense, the fact being that bullæ are manifestations of several disorders, including syphilis, lepra, pemphigus foliaceus, herpes iris, and erythema multiforme.

At the outset, consequently, the blebs of pemphigus can scarcely be differentiated from those of other diseases. It is necessary for its recognition that proper consideration be had of all the cutaneous and other phenomena present in the disease. In syphilis, such lesions are rare in the adult, and relatively more frequent in infants hereditarily diseased. With the latter, the blebs are usually seen at birth, often upon the palms and soles, and are frequently superimposed upon an excoriated base. The coexistence of mucous patches of the mouth, vulva, and anus with the evident polymorphism of the lesions and signs of grave cachexia, will usually indicate the nature of the disease. The cutaneous symptoms of such infants are improperly designated as pemphigus. Such an eruption is a bullous syphiloderm.

In the bullæ of lepra, there is usually coexisting cutaneous anæsthesia, and the involution of the bleb is followed by a strikingly characteristic atrophic patch, usually pigmented and insensitive. In pemphigus foliaceus, the extraordinary and usually generalized desquamation which ensues, is sufficiently distinctive, though it must be borne in mind, as heretofore stated, that the several varieties of pemphigus may be transformed, the one into the other, by well-nigh insensible gradations. Among its graver forms susceptible of such transformation may be named, impetigo herpetiformis, pemphigus cachecticus, pemphigus diphtheriticus, and pemphigus pruriginosus.

In herpes iris, the lesions are more vesicular; much more transitory; subject to a concentric arrangement and variation with respect to color; and are situated more frequently upon the extremities, especially the backs of the hands. The bullous lesions occasionally seen in urticaria and erythema multiforme, are to be recognized by the other characteristic symptoms of those diseases; in the former, more particularly, by their intermingling with typical wheals; and in the latter, by the location of the eruption, and its climatic or seasonal significance. Some of the reported contagious forms of pemphigus, epidemics of which have been described by Besnier, Hervieux, and other French authors, were possibly, as Dühring suggests, instances of impetigo contagiosa. This inference is sustained by the frequent allusion of the writers named to the "varicella-form" appearance of the lesions.

¹ *Lancet*, May 30, 1886, p. 981.

Some of the ingested medicaments are capable of producing bullous lesions, for example, the iodide of potassium; and such a possibility should always be borne in mind when establishing a differential diagnosis. Scabies in infants and children is occasionally characterized by the formation of blebs, in which case the other lesions present, as also a history of contagion and the discovery of the parasite, will point to the real nature of the disease.

Lastly, the external application of cantharides, mezereon, the stronger acids, alkalies, and other chemicals may be followed by blebs produced either by accident or intention with a view to feigning disease. The intentional production of such symptoms is usually effected upon the anterior faces of the lower extremities, regions within easy reach of the right hand. Erysipelas and dermatitis calorica are also diseases in which blebs appear, always, however, of minor significance as compared with the other symptoms of disease present. The same may be said of the bullæ which form upon a gangrenous integument.

Treatment.—The internal treatment of pemphigus is a matter of importance, as will be suggested by even a brief consideration of the constitutional states in which it occurs. Mr. Jonathan Hutchinson, of London, Eng., in his valuable *Lectures on Clinical Surgery*,¹ distinctly asserts his belief that “arsenic is a specific for the state of health upon which relapsing pemphigus depends.” In many years’ trial of this remedy, he declares that, in his own practice, he has never recorded a single failure, though he makes exception, properly, of many infantile cases supposed to be syphilitic. The remedy is certainly a valuable one, but should be employed with the same caution and in accordance with the rules already prescribed in the chapter on psoriasis. Kaposi, however, declares that he has been unable to obtain favorable results from its employment. Iron, quinine, ergot, strychnia, and the mineral acids are certainly indicated in many cases, in conjunction with a particularly nutritious diet. Cod-liver oil and the malt preparations now in the market should not be neglected.

Not infrequently the treatment should be directed to the relief of the anomalous performance of the sexual function in women, as the disease has been found to occur in the hysterical and chlorotic states sufficiently common as a result of such disorder.

The local treatment of the lesions should consist, first, in a puncturing of each bleb with a fine needle, in order to give exit to its contents, which should be carefully removed from the skin by the aid of cotton-wool. Then the parts are to be thoroughly enveloped in an inert dusting powder. When there is considerable pyrexia with heat and distress in the skin, the surface may be treated as in acute eczema, with oleated lime-water, containing also opium or dilute hydrocyanic acid in some such proportions as those already detailed.

¹ London, J. & A. Churchill, 1878, p. 49.

The ordinary lead and opium wash, with or without the addition of the oxide of zinc, will also answer a good purpose.

In Vienna, the continuous hot-water bath still enjoys the highest favor. Kaposi has kept one patient day and night for eight months with his body thus immersed, to the great advantage of the latter. Such a course is often impracticable outside of a large hospital; but the author has, in two cases of grave pemphigus, employed the continuous hot-water bath in private houses, with the happiest results.

Prognosis.—The prognosis in mild cases of pemphigus, though much less grave than in the malignant forms of the disease, should always be formulated with caution. Unlike several of the diseases heretofore considered, the affection is one not frequently encountered in persons of fair general health. The constitutional condition of the patient must be carefully considered; nor should it be forgotten that the disease is not only one liable to relapses, but also one in which the graver may succeed the more benign manifestations. A flaccid summit of the bleb, sanguinolent or ichorous contents, an abundant efflorescence, and a rapid succession of new after the involution of more ancient lesions, are in general unfavorable symptoms. The same may be said of degeneration of the floor of the bleb, after rupture and discharge of its contents.

CLASS III.

HÆMORRHAGES.

Cutaneous Hæmorrhages.

Cutaneous Hæmorrhage is characterized by the issue of a part or all of the constituents of the blood from the cutaneous or subcutaneous vessels, with and without rupture of the vascular walls.

Hæmorrhage into the skin may be active or passive, idiopathic or symptomatic, and may vary greatly in extent. It may be limited to but a small area of the integument, or may be symmetrical and universal, or coexist with similar blood extravasations in the mucous membranes, and the investments and parenchyma of the viscera. It may result from undue intra-vascular pressure, as in violent effort with extraordinary demand upon the circulatory system. It may occur with a normal intra-vascular pressure when there is lessened extra-vascular atmospheric pressure, as after ordinary exertion in high altitudes. It may result from disease of the vascular walls, as in malnutrition. It may occur after traumatism of the latter, or by diapedesis through the walls of uninjured capillaries. It may result also from lack of support of the vessels due to various disorders of peri-vascular tissues, as in the case where the epidermis

is artificially removed, or where an abscess cavity is evacuated of pus, and the sac immediately fills with blood.

Idiopathic hæmorrhage into the skin and neighboring tissue is usually the result of traumatism, and accomplished through rent of the vascular wall. The discolored patches which result from contusions of the surface of the body are illustrations of this condition. Examples of symptomatic cutaneous hæmorrhages are to be found in the course of such general diseases as septicæmia and variola, and of such cutaneous disorders as herpes, pemphigus, and erythema multiforme.

BULLE HÆMORRHAGICÆ are globoid, bean- to egg-sized elevations of the epidermis, filled with a sanguineous or sero-sanguineous fluid, giving such lesions a reddish, brownish, or purplish shade.

ECCHYOMATA are nut- to egg-sized, and even larger, firm or fluctuating, flattened or elevated tumors, filled with blood, and having a cutaneous envelope.

ECCHYMOSES are small coin- to palm-sized, and even larger, light red to dark purplish, irregularly shaped, macular colorations of the skin, not fading under pressure, and due to circumscribed cutaneous hæmorrhage.

PETECHIÆ are pin-point to small coin-sized, light red to dark purplish macular colorations of the skin, not fading under pressure, and due to circumscribed cutaneous hæmorrhage.

VIBICES are linear maculations of various lengths, due to the diffusion in the skin of extravasated blood in the form of streaks or bands. They are often commingled with petechiæ and ecchymoses.

Purpura.

Gr. πορφύρεος, purple.

Purpura is a disease characterized by the appearance in the skin, of reddish-purple or livid maculæ, varying in size, usually not clustered, and not wholly disappearing under pressure, which may be associated with systemic symptoms.

Some confusion has existed in connection with the term, Purpura, in consequence of the fact that it has been employed indiscriminately by authors in the designation of both symptoms and diseases. The following disorders are commonly included under this title:

[A.] Purpura Simplex.

In this form of cutaneous hæmorrhage, pin-head to pea-sized light red to dark purple petechiæ and small ecchymoses, usually

multiple and symmetrical, of slow or sudden occurrence, appear upon various portions of the surface, chiefly over the lower extremities, and here doubtless by preference, because of the greater effect of gravity upon the column of blood. They usually awaken no subjective sensation, and may occur in persons of apparently unaltered health, though rigid examination will often disclose some facts having a bearing upon the etiology of the disease. The subjects of the disorder are frequently asthenic, and complain of unwonted lassitude and malaise. The disease may last for a fortnight, and in exceptional cases be accompanied by a febrile rise of temperature. Lesions of this sort may be due solely to an ingested medicament, such as arsenic, salicylic acid (Freudenberg), or quinine. The author has seen the lower extremities completely covered with petechiæ, induced by the ingestion of the iodide of potassium, a fact reported by other observers.

Purpura Urticans

is that form in which there is an irritability of the skin sufficient to produce wheals, urticarial lesions accompanied by itching in various degrees, which have the purpuric hue in consequence of circumscribed cutaneous hæmorrhage.

Purpura Rheumatica. (Peliosis Rheumatica.)

This is a variety of purpura which has a striking analogy to erythema multiforme, and is probably an exaggerated form of some of the conditions recognized under that title. It is preceded by the usual febrile or other premonitory symptoms associated with arthritic pains, especially of the knees and ankles, which may become swollen, or be affected with an hydrarthrosis. In a few days, petechial to ecchymotic, light red to dark purplish maculations appear upon the extremities, trunk, or the entire surface of the body, fadeless under pressure, and usually with coincident relief of the arthritic pain. The subjective sensations are ordinarily trivial. In a fortnight, the eruption may subside, its color undergoing the usual variations from greenish to orange and light yellow; but relapses are common in the course of weeks, with recrudescence of the fever, return of the rheumatoid symptoms, and progressive asthenia. Kaposi describes cases in which there was coincidence of purpura rheumatica with renal hæmorrhage, albuminuria, and gangrene of the soft palate in consequence of its over-distention with blood. Cases are also on record where there were cardiac involvement and grave disorder of other viscera. According to Mackenzie,¹ the disease occurs in both sexes, more frequently in women however, and between the ages of twenty and thirty, though also at earlier periods of life. The purpuric spots observed by him usually made their appearance regularly in the afternoon or evening, sometimes daily, and often with several

¹ Brit. Med. Journ., March 18, 1882, p. 383.

days' interval, accompanied by pain, stiffness, and swelling of the joints. The maculæ were at first of a bright reddish hue, but became purplish by the ensuing day. The site of predilection was the extremities, but the eruption in his cases was sometimes more generalized.

The lesions displayed this amount of symmetry: if they occurred on one extremity, upper or lower, they would generally be found on the other. As a rule, there were not profuse sweats, unless the attack occurred with rheumatic fever; the joint affections and pyrexia, though distinct, were not severe. Sometimes there was a certain amount of erythema accompanying the hæmorrhages; often the eruption was purely hæmorrhagic. The attacks were frequently very protracted, lasting even some months, and were liable to recur.

The disease occurs in both sexes, though more often in young women, and is to a certain extent influenced by the changes of climate and season. Its diagnosis, in consequence of its marked characteristics, coincidence of petechiæ and ecchymoses with rheumatoid pains, is readily effected. Duhring calls attention to the danger of confounding it with the macular syphiloderm, the lesions of which, however, fade under pressure. The prognosis is in general favorable, though the disease may persist for long periods of time, and may, in rare cases, terminate fatally.

[B.] **Purpura Hæmorrhagica.** (**Morbus Maculosus Werlhoffii.**)

This disorder, called also land-scurvy, is usually ushered in with phenomena of a febrile character, accompanied by symptoms of general depression. Subsequently, ecchymoses appear upon the extremities and trunk, both spontaneously and at points where the integument has been specially subjected to pressure and friction. Usually petechiæ appear simultaneously upon the nasal, laryngeal, buccal, and other mucous surfaces, which may also be the seat of exhausting hæmorrhages, resulting rarely in fatal collapse. A symptomatic fever is usually awakened. The disease occurs equally in the robust and feeble of all ages, and, though usually as a sporadic affection, it may assume an epidemic form. The disease is slow in its course, but commonly terminates favorably after the lapse of several months.

The lesions commonly appear first on the upper extremities; then over the trunk, and finally over the lower extremities. They are usually dark red or purplish in hue, varying in size from a pin-head to a bean, but may be of the size of the palm.

It is distinguished from purpura scorbutica, or "scurvy," by the absence of distinctive premonitory symptoms of the latter disease, and its invariable occurrence among those suffering from improper alimentation, vitiated air, and lack of exercise.

Purpura Scorbutica. (Scurvy.)

This disorder is peculiar to those who are compelled to subsist for lengthened periods of time on improper food, more particularly that from which fruit and fresh vegetables are excluded; to respire a vitiated air; and to endure such confinement as precludes the possibility of duly exercising the body. The disorder is hence more common among sailors, prisoners, Arctic voyagers, and men similarly situated.

The cutaneous lesions are, as in so many other forms of purpura, preceded by an almost characteristic sense of languor and depression. One or several joints may then enlarge. There may be, however, a distinct febrile action.

The hæmorrhages which result are quite like those of purpura hæmorrhagica; and the cutaneous lesions are petechiæ, ecchymoses, and painful ecchymomata, usually first appearing on the lower extremities, which may fluctuate, open, and result in offensive ulcerations reaching to the bone. Simultaneously with the cutaneous eruption, the gums become involved, and show as tumid, hæmorrhagic, or ulcerative fungosities, smeared with a dirty yellowish secretion, and having a fetid exhalation. The subcutaneous connective tissue, muscles, fasciæ, and viscera become also involved. The disease is accompanied by febrile and other general phenomena of asthenia, and, when the causes are persistent, results fatally. It is, however, remediable by proper treatment, though convalescence is usually tediously prolonged.

Purpura Pulicosa

is the result of the traumatisms produced by fleas, lice, and bugs. The lesions are punctiform, and due to the welling up of blood into the minute punctured wound, surrounded usually by an hyperæmic halo which is the result of the irritation. When the latter fades, the central hæmorrhagic point usually for a brief time persists. The disease is characteristically manifested upon the filthy skins of individuals long bitten by bugs, and covered with excoriations and dark colored crusts, the result of scratching. Such cases are often pronounced scorbutic.

The symptoms of cutaneous hæmorrhage are also observed in other conditions besides those named above. Petechiæ and ecchymoses are also in cases noted upon the lower extremities of the subjects of tuberculosis, cancer, and the plague. In HÆMOPHILIA, a disease occasionally of hereditary origin, and characterized by the facility with which trivial traumatisms of the surface are followed by incoercible hæmorrhages, purpura may be the first signal of the predisposition. A young man with purpuric lesions of both lower extremities, and otherwise in apparently good health, lately presented himself at the Dermatological Clinic for the relief of the difficulty.

There was at the time no suspicion of hæmophilia, but two weeks later, as the result of a vaccination, he bled continuously for eight days.

Pathology.—Many cutaneous hæmorrhages, not resulting from traumatism, however manifestly and immediately due to morbid conditions of the vessels, are by many authors believed to have a neurotic origin. Purpura hæmorrhagica, for example, in consequence of the frequent absence of lesions of the vascular walls sufficient to explain its phenomena, is by Wagner, Hænoch, and others explained by supposing either abnormal excitation of the sympathetic system, or paresis of the vaso-motor centres. Cavalier¹ reports a case of purpura alternating with paralytic symptoms. The frequently symmetrical disposition of the lesions has received a similar interpretation. Tyrrell² reports cases induced by marsh-miasm, and Satterthwaite,³ of New York, a similar case, in which the eruption followed a chill lasting three-quarters of an hour.

In all these cases, the hæmorrhages occur chiefly in the derma, though often in the subcutaneous connective tissue, a fact well illustrated by the drawings made by Variot⁴ of sections of the purpuric skin of a patient dead of hæmoptysis. In this case there was numerical diminution of the red corpuscles in life, as demonstrated by the hématimètre, without any change in their form, volume, or color. Inflammatory complications in these conditions are rare. The color of the several lesions induced is, without question, derived from the hæmatine, which not only stains the enviroing fluids, but also the tissues themselves where the extravasation occurs, and appears, when absorption of the fluid portions of the clot has been accomplished, in the form of variously sized granules. In this way, the color-changes between red, orange, yellow, purple, and violet in the resolution of petechiæ and ecchymoses are to be explained. The persistence of the pigmentations varies with the quantity of the effused blood and its seat. In mild cases, especially of lesions involving the upper half of the body, all traces of the hæmorrhage may be removed in the course of a few weeks. Dark pigmentations resulting from purpura scorbutica, affecting prisoners at Andersonville during the late civil war in this country, are still, in some persons, perceptible upon the lower extremities.

The explanation of the diapedesis of blood through the vascular walls by supposing changes to have occurred in the fluid itself, has been made by Chalvet, Andral and Gavarret, and others. The pale and watery appearance of the fluid, the increase in the proportion of fibrine in the clot, the diminution in the number of the red blood-corpuscles, and the lowered specific gravity of the blood have all suggested this view. Kietschy has called attention to irregularity in the shape and metamorphosis of figure in the red blood-corpuscles.

¹ Bull. Gén. de Thérap., 1879.

² Pacific Med. and Surg. Journ., June, 1876.

³ Med. Gazette, Jan. 14, 1882, p. 14, cited by Duhring.

⁴ Journ. de l'Anatom. et de la Phys., Nov., Dec., 1881, p. 520.

Wilson, Fox, and others, again, have recognized lardaceous or inflammatory changes in the vascular walls, with embolism or thrombus in others. Watson Cheyne¹ discovered in a case recorded by Russell, some of the capillaries in the neighborhood of the hæmorrhages plugged with bacilli, and colonies of the same in the blood effused after rupture.

Treatment.—The treatment of these various forms of cutaneous hæmorrhage will clearly depend upon the nature of the cause in each case. In general it may be said that internally the use of ergot, of the chloride or other salt of iron, and of quinine is advisable. The oil of turpentine, the tincture of the muriate of iron, the acetate of lead, and dilute sulphuric acid, have all been employed at times with marked success; at others, without; in the treatment of these cases. Hypodermatic injections of Bonjean's ergotine, one part to two of distilled water, repeated every second day, have been speedily followed by favorable results. A generous diet, the use of wines, malt liquors, and even spirits, and strict observance of the demands of hygiene, are often essential methods of relief.

In the way of local treatment, the gums often require an application of rhatany, one part of the extract to fifty or sixty of lotion; or equal parts of the tincture of cinchona and tincture of myrrh, diluted as required.

Rest in the recumbent position is advisable, and, if hæmorrhage be actually in progress, the free use of hæmostatics will be required with local application of ice. For those who are convalescent from systemic disorders accompanied by purpuric lesions of the lower extremities, resorption of the extravasated blood may be hastened by the local application of stimulating spirit lotions with friction; and the pressure of the blood column may be partly relieved by elastic bandaging of the extremities.

The prognosis has been given, as far as might be, in connection with each disorder named.

¹ Brit. Med. Journ., Sept. 1, 1883, p. 416.

CLASS IV.

HYPERTROPHIES.

1. Of Pigment.

Lentigo.

Lat. *lens*, a freckle.

Lentigo is that condition in which occur pin-head to bean sized, yellowish to brownish, circumscribed, and usually multiple maculations of the cutaneous surface, due to an excessive deposit of pigment, most often seen on the face and dorsal surfaces of the hands.

Symptoms.—This condition, termed also EPHELIS, is due to excessive and irregular deposit of pigment in the skin, producing the pin-head to bean-sized spots of circinate or irregular outline, frequently grouped and even confluent, which are commonly designated as “freckles.” They are most frequently seen symmetrically distributed on the parts of the body ordinarily exposed to the light and heat of the sun and atmospheric influences, such as the face, the neck, and the backs of the hands in persons of both sexes. In those whose bodies are to a greater extent similarly exposed, they occur upon the chest, the back, and over the extremities. In other individuals, they may be seen upon parts not thus exposed, such as the penis, the scrotum, and the inner faces of the thighs, a fact which indicates that they are not always the result of the operation of the agencies noted above. They vary in color from light yellow, salmon, and red to the deepest brown; and are most noticeable in persons having red hair and a delicate skin. They occur rarely in infancy, partly, perhaps, on account of the infrequency of out-door exposure in tender years; and are usually seen first about the age of six to eight years. They are commonly observed in mulattoes, individuals of a race particularly disposed to the anomalies of pigment distribution. Once developed, the lesions may persist through life without marked alteration; or fade with each recurrence of the season of winter; or, in milder cases, entirely disappear. They usually share in the atrophic changes of old age, and, when persisting to that period, may then spontaneously disappear. They are not the source of subjective sensation.

Etiology.—Freckles are, without question, produced and aggravated at times by the action of the light and heat of the sun, as a common experience declares; but it is evident that these forces must act upon a susceptible skin. Of a hundred sailors exposed in precisely similar situations on a long cruise, some of the number will be uniformly “tanned,” and others deeply “freckled.” Attention has been called to the occasional occurrence of lentigo in the protected parts of the skin. Dr. White, of Boston, in an interesting paper on melano-

derma,¹ calls attention to the fact that exposure to sea-air and fog, with obscuration of the sun, is sufficient to produce the result.

Pathology.—Freckles are due to an increase of deposit of pigment in definite areas of the epidermis, never in the corium. Lesser urges, with strong probability in his favor, that there is always a congenital predisposition to these pigment formations which requires certain external conditions for development.

Treatment.—The treatment of lentigines is that of chloasma and other pigmentations of the surface. Prof. Wertheim, of Vienna, advises :

R. Hydrarg. ammon. muriat.	gr. lvi;	3/75	
Bismuth. magister.	gr. liij;	3/50	
Ungt. glycerini	℥j;	32	M.
Sig. To be applied only every other night.			

Bulkley employs :

R. Hydrarg. chlor. corros.	gr. vi;	4	
Acid. acetic. dilut.	f℥ij;	8	
Boracis	℥ij;	2	66
Aq. ros.	f℥iv;	128	M.
Sig. To be applied night and morning, at first with gentle brushing; afterward by rubbing.			

Hardaway touches each freckle with a rather stiff needle connected with the negative pole of a galvanic battery, and finds the results satisfactory.

Most of the secret methods employed by charlatans for the removal of freckles depend for their success upon thorough blistering of the surface. Inasmuch as by this process the epidermis is removed, it is evident that the pigment of its cells is also removed with it; and the new epidermis is for a time quite free from blemish. But in all such cases the ultimate result is a deeper and more persistent pigmentation than that which was previously visible.

Chloasma.

Gr. χλωάζω, to possess a greenish color.

Chloasma is that condition in which occur yellowish to blackish, finger-nail to palm-sized, circumscribed, diffuse, and ill-defined maculations of the cutaneous surface, due to an excessive deposit of pigment.

Symptoms.—In this affection the skin is either diffusely discolored in various shades, or the maculations occur in patches larger than those of lentigo, fairly well-defined, and irregular in contour, the so-called "liver-spots." In color they vary from a scarcely perceptible staining of the skin, which requires a strong light for its detection, to a deep yellow, a yellowish-green, a chocolate-brown, or a blackish shade (MELANODERMA). They may be either idiopathic or symptomatic in character.

¹ Boston Med and Surg. Journ., May 16, 1878, p. 624.

The idiopathic varieties of chloasma are produced by all externally operating agencies, in consequence of which an undue afflux of blood is persistently determined to any portion of the skin. It is largely from the blood that the pigment is derived, and hence the stains produced by the latter are, to a certain extent at least, proportioned to the hyperemia, stasis, or extravasation of the vascular fluid. Among these externally operating agencies may be named, pressure and friction (as over the part covered by the pad of a truss); traumatism (as after the severe scratching of the skin affected with lice, eczema, or scabies); heat (as in diffuse "tanning" of the face, or "sunburn" following exposure to the solar rays); and the toxic or irritating effect of externally applied substances, such as mustard, capsicum, cantharides, and other articles capable of producing either vesication or pustulation of the surface. The physician should always remember the possibility of producing long, persistent, or even permanent pigmentations of the skin upon the face, shoulders, and bosom of young women especially, by the repeated application of such topical medicaments.

The symptomatic varieties of chloasma are the results of disorders either systemic or involving the internal organs. They occur as either circumscribed or diffuse, localized or generalized, spots, mottlings, stainings, or "masks" of the skin; and vary in color from the lightest to the darkest shades. One of the most common, and at the same time the most marked of these, is *CHLOASMA UTERINUM*, so called because of its frequent association with certain physiological or pathological conditions of the uterus, both among married and single women. Thus in pregnancy, sterility, hysteria, chlorosis, ovarian disorders, and tumors, and functional derangements of the uterus, there can be observed at times a facial discoloration extending equably over the forehead and reaching nearly to the line of the hairs at the scalp, in the form of a faint or decidedly yellowish, reddish-yellow, or deep brownish tinge. At other times, the discoloration is macular and asymmetrical, involving the lids, the cheeks, the lips, or the chin. When the chloasma assumes the mask-like form, it is usually most pronounced over the forehead, but may involve the whole facial region, being less distinctly defined below than above. Similarly, the well-known changes occur in the areola of the nipple, along the linea alba, and about the external genitalia.

Melanoderma, or Chloasma, Cachecticorum

is another of the symptomatic pigment disorders, characterized by the changes in the color of the integument of the subjects of tuberculosis, syphilis, cancer, chronic alcoholism, malaria (*e. g.*, "Chagres fever"), and other disorders.

The peculiar bronzing of the skin in *ADDISON'S DISEASE*, formerly thought to be due exclusively to lesion of the supra-renal capsules, is of the same nature. Overbeck and Greenhow have shown that the capsules may be completely destroyed without changes in the

skin-color resulting. The pigmentation may be general or partial; and in the latter case is without definite lines of demarcation. It is commonly most pronounced over the face, neck, scrotum, groins, axillæ, and nipple and areola. The hairs become coarse and dark; and dark patches are at times visible over the mucous surface of the lips, gums, and other parts of the mouth. The bronze or mulatto-like color of the skin is intensified by stimulation or erosion of the cutaneous surface. In these cases there is generally marked asthenia, with a feeble pulse, with anorexia and other signs of gastro-intestinal disorder. When the result is fatal, there may or may not be recognized pathological alterations of the supra-renal capsules.

Among the cutaneous disorders capable of producing skin pigmentation may be named scleroderma, lepra, angioma pigmentosum et atrophicum, eczema, especially *e. venis varicosis*; and general exfoliative dermatitis.

From all of the discolorations named above, which are due solely to deposition in excess of coloring matters normally existing in the skin, it is necessary to distinguish the various dyschromiæ which are owing to the introduction into the integument of coloring substances, either supplied by other portions of the body or entirely foreign to it. Thus, in icterus, the bile may color the skin from a light yellow to a dark chrome color, the duration and severity of the cutaneous symptoms depending upon the nature and gravity of the hepatic disease. It is frequently accompanied by pruritus in various grades of severity, the exact causes of which are obscure.

In ARGYRIA, the bluish, bluish-gray, slate-colored, or bronzed coloration of the skin results from the introduction from without of the nitrate of silver. It is most commonly the result of the administration of the drug in the treatment of epilepsy, but is said also to have resulted from the topical application of the silver crayons to the throat, to the conjunctivæ, and even to the skin. Under what form the silver produces this effect, whether as an albuminate or other salt, is not known. The deposition, however, occurs in the form of minute particles of the metal in the connective tissue of the derma. The discolorations are most evident upon the parts of the skin exposed to the light, as the face and hands; but the author has seen the chest and lower extremities similarly stained. The connective tissue of the viscera is also at times involved, showing thus that the action of light is not essential to the production of the dyschromia. Two cases are reported as relieved by the administration of the iodide of potassium.

The administration of arsenic in full doses for relief of nervous disorders in children has been followed by a characteristic dull brownish or dirty-colored discoloration of the skin of the neck and chest. Several cases of this sort have been presented to the author's observation in his clinic by Dr. H. N. Moyer.

By the process of tattooing, lastly, several mineral and vegetable substances are directly introduced into the corium by means of

needles, for the production in the skin of various devices in colors. Individuals whose entire integument has been thus artificially covered with figures of different patterns by tattooing with indigo, vermilion, and cinnabar have been from time to time exhibited in this country. The results are indelible. *Post-mortem*, these pigments have been discovered not only in the derma, but in the lymphatic ganglia nearest the site of their introduction.

Pathology.—The lentigines, ephelides, and chloasmata are all due to excessive deposit of the natural pigment of the body in the rete mucosum of the epidermis. Restoration of the normal color of the skin is usually proportioned to the extent and depth of the deposit, but the process is always very gradual. It can be well studied in the slow bleaching of the pigmentation of syphilitic cicatrices upon the lower extremities. In the dyschromiæ due to the introduction of coloring matters foreign to the body or foreign to the skin, the corium and subcutaneous connective tissue are commonly stained.

Diagnosis.—The diagnosis of the cutaneous pigment hypertrophies is readily effected by observing the persistence of the discoloration under pressure; the absence of all symptoms of hyperæmia, inflammation, and secondary changes in the skin, as also by the characteristic shades of color presented to the eye. In tinea versicolor there is usually slight furfuraceous desquamation, and the existence of a vegetable parasite is readily demonstrated by the microscope. The rare pigmentary syphilide is usually seen upon the neck and shoulders of infected women in the form of yellowish to brownish maculations, often arranged in an irregular network. It is, indeed, one of the symptomatic chloasmata.

Treatment.—In all the symptomatic pigment anomalies, the indications for treatment are presented by the disease which begets the cutaneous disorder.

The local treatment of both the idiopathic and symptomatic varieties of the disease demands the use of external applications which will hasten the physiological reproduction of the epidermis, substituting thus new and unpigmented for old and pigmented epithelia. This must also be accomplished without the artificial production of such an hyperæmia as will tend to add to the very coloration which it is attempted to relieve. The substances used for the slow accomplishment of this end are muriatic and acetic acids, borax, sulphur, tincture of iodine, potash, and soda (including the soaps of these alkalis), and the mercurials. None of these is more generally employed than corrosive sublimate, which constitutes the basis of most of the cosmetic lotions sold in the shops.

The following are formulæ given by Dr. White¹ for use in the evening. The preparation in each case should be left upon the surface during the night, and removed by a soap and water washing in the morning. They are to be used for weeks in succession, but only after a cautious preliminary testing of the sensitiveness of the skin

¹ Loc. cit.

to their action. In order to avoid the possibility of error, the practitioner would do well to order a poison-label upon all vials containing the sublimate :

R. Hydrarg. am. chlor. }	āā 3ij ;	8	M.
Bismuth. magister. }			
Amyli }	āā 3ss ;	16	
Glycerin. }			
R. Ammon. muriat.	3ss ;	2	M.
Aq. colognien.	f 3j ;	32	
Aq.	Oss ;	256	
R. Hydrarg. bichlorid.	gr. vj ;	4	M.
Acid. mur. dil.	f 3j ;	4	
Glycerin.	f 3j ;	32	
Alcoholis }	āā f 3ij ;	64	
Aq. ros. }			
Aq.	f 3iv ;	128	

The following are formulæ for ointments given by Kaposi :

R. Hydrarg. ammon. }	āā 3ss ;	16	M.
Sodæ biborat. }			
Ol. rosmarin.	gtts. x ;	5	
Unguent. simpl.	3j ;	32	
R. Acid. boracis }	āā 3j ;	4	M.
Ceræ alb. }			
Paraffin.	3ij ;	8	
Ol. amygd. dulc.	3j ;	32	

Van Harlingen recommends :

R. Hydrarg. chlor. corros.	gr. vss ;	4	M.
Zinci sulphatis }	āā 3ss ;	2	
Plumbi subacetat. }			
Aq. dest.	f 3iv ;	128	
Sig. Lotion, for external use, morning and evening.			

The rapid removal of pigmented patches is accomplished, in Vienna, by covering the part with strips of linen dipped in an aqueous or alcoholic solution of corrosive sublimate of the strength of four grains (0.26) to the ounce (32.), with which also the dressing is occasionally moistened. Vesiculation is usually accomplished in about four hours, when the serum is evacuated by puncture, and the detached epidermis covered with any inert dusting powder. The resulting crust falls in about eight days. The procedure is attended with the danger of producing, in the end, the precise deformity which it seeks to remedy, a danger explained above.

The internal administration of the iodide of potassium, recommended for the removal of argyria, has in my hands failed of any good results. Yandell's two patients, one completely and the other partially relieved, were both syphilitic. One of my patients was a veteran syphilitic, fifty years of age.

2. Of Epidermal and Papillary Layers.

Keratosis.

Gr. *κίραξ*, a horn.

The term Keratosis was first applied by Lebert to hypertrophic lesions of the epidermis. It has since been made to include changes in both the epidermis and corium; and is employed by some authors in a generic sense to embrace a number of both localized and general hypertrophies, including callosities and corns. In the classification of the American Dermatological Association, however, it includes merely the two disorders described below, the others embraced by authors in the same category being in these pages separately considered.

[A.] Keratosis Pilaris.

Keratosis Pilaris is a disorder, chiefly of the extremities, characterized by multiple, millet-seed sized, whitish, grayish, or slightly reddish aggregations of epithelium, about the orifices of the hair-follicles.

Symptoms.—This condition, termed also LICHEN PILARIS, and PITYRIASIS PILARIS, may be a mere temporary and functional disturbance of the skin, awakening no subjective sensation, inappreciable by the patient, and apparent only to the careful observer, or it may really constitute a disease. Its symptoms are the occurrence of pin-head sized, pointed elevations of the surface, which may be described as papules, though, strictly speaking, they are not such, constituted by an accumulation of horny epithelia and a small quantity of inspissated sebum about the lanugo hairs of the extensor surfaces of the extremities and trunk. These aggregations of material are usually of a dirty whitish or grayish hue, and pierced by a lanugo hair implanted in the follicle about which the abnormal condition exists. Occasionally, however, the hairs are of the finer and shorter kind, and are often coiled in or otherwise covered by the little heaps of epithelial débris. The skin of the individual thus affected is generally harsh, squamous, and dry to the touch; being also, in the majority of cases, long unwashed. The color of the quasi-papules also differs with the complexion of the individual; at times they have a distinctly reddish tinge. They are often surmounted by a scale.

The condition is sufficiently common in skins long uncleansed by ablution, and can thus be artificially produced. In some individuals it persists for long periods of time, and awakens no concern. In others, and especially in children, it speedily becomes the source of a pruritus, and each lichenoid papule may be then transformed into an urticarial wheal, with distinct and sometimes very annoying, pricking and tingling sensations, the entire trouble being at once relieved by a bath in warm water with soap. In other cases, especially in adults, an exaggerated form of the disease can be recognized, the skin presenting a roughness to the touch suggestive of the nutmeg-grater,

and exhibiting numerous fine, conical, grayish, horn-tipped filaments, which several dermatologists are disposed to regard as a form of ichthyosis. Here, there is doubtless a true hypertrophy of the epidermis. In the former case, there is scarcely more than a mechanical accumulation of effete organic material. There can be little doubt that the malady, simple though it be in character at the onset, may become the first stage of a series of chronic cutaneous disorders. Tilbury Fox has reported four cases in which the disease was well marked, under the title *CACOTROPHIA FOLLICULORUM*, the name being employed to designate its peculiarities as to wide distribution over the body, implication of the deeper portion of the follicles, and its congenital history. In these cases, the reddish tint of the lesions is distinctly shown.

Pathology.—The disease is produced by the accumulation of the cells of the horny layer of the epidermis and sebaceous material about the orifices of the hair-follicles. In some cases the result is an irritation which produces a more or less persistent hyperæmia of the periglandular tissue.

Etiology.—Puberty and uncleanness have been assigned as a cause of the disorder; and both conditions may be in some patients effective. A careful study of a group of exaggerated cases, however, occurring in adult men and women, suggests more essential reasons for the disease. In such exaggerated cases, the outer faces of the limbs and even the entire face of the belly may be covered with faintly pinkish or bright reddish firm papules, many of them scale-capped, all seated at the orifice of a hair-follicle. In these patients there may be a history of regular ablution and persistence of the malady long after puberty. But in general they will be seen to have peculiarly thick, coarse, usually dark colored skins, and also to be persons of marked muscular vigor and unusual development of most of the other bodily tissues. In brief, the disorder seems to be due often to marked inherited predisposition in persons of vigorous constitution. The varieties of keratosis pilaris seen in cachectic hospital patients, and in persons who have aggravated the disease by inducing a medicamentous rash upon the person, belong to a different category. Patients in the two last-named classes may be so perfectly relieved that there is no predisposition to return of the disorder, a relief not always to be secured by the others.

Diagnosis.—The disease should be readily recognized by the peculiarities of its seat, its course, and the nature of its symptoms. From ichthyosis, it can be distinguished by its limitation to the orifice of the hair-follicle; from the transitory condition known as "goose flesh," by its persistence after the surface of the skin is thoroughly warmed; from papular eczema and the other lichenoid eruptions, by the relatively insignificant character of the lesions and their evident association with follicular inertia.

It is a matter of very considerable importance to distinguish this disease from the papular syphilodermata, since many male patients have for years swallowed medicaments for relief of a supposed

syphilis whose sole symptom is a keratosis pilaris. But the papular syphilodermata are not persistent year after year, not persistently symmetrical, and not limited largely to the outer faces of the limbs, especially of the thighs. They are preceded by a history of infection and invariably accompanied by some other manifestations of the disease. They are not limited to the orifices of the hair-follicles, and are not capped by the peculiar horny sealing tip of the papule of keratosis pilaris.

Treatment.—For patients affected with this disorder in its typical forms it is not sufficient merely to order a bath. The bathing should be conducted systematically for years at a time.

As soon as it can be well tolerated, the patient should be urged to bathe the entire surface of the body every morning, by the use of the sponge and cold water, following this with brisk friction by the aid of a coarse towel or flesh-brush. The daily and habitual use of this cold bath continued for years, in persons who can tolerate it (and patients affected with keratosis pilaris are usually of this class), accomplishes results of the most satisfactory character, exerting as it does, a profound influence on the nutrition and healthfulness of the skin.

For immediate treatment, however, of the most of these cases the hot bath with the soap is desirable. This may be repeated as often as required to remove the lesions, and followed, in the more urgent cases, by inunction with the fats or oils. In the congenital and severer cases, such as those described by Fox, cod-liver oil, internally, should be ordered.

[B.] Keratosis Senilis.

The senile changes in the skin are commonly of the character studied by Neumann, in which granular opacities appear in rows in the corium, giving it a dull greenish-yellow or saffron-colored hue. Later, the fibrillæ of the corium are almost entirely replaced by finely granular masses, the remaining fibres becoming swollen and gelatiniform, reverting thus to an embryonic type.

Side by side with these degenerative changes, but also without the latter, the skin of the aged may become harsh, dry, and unusually cornified either diffusely or in certain definite regions, such as the hands, feet, or extremities. This may be regarded as the simplest form of keratosis senilis. The skin of the entire body, or of the region affected, is then dark in color, dry to the touch, occasionally covered with fine, rather adherent scales representing merely attached and cornified cells of the horny layer of the epidermis, and notably unprovided with the natural unguent of the skin.

In a more advanced grade of this affection, the skin undergoes changes which are closely allied to epithelioma, and which indeed often both furnish the first symptoms of that affection and also coexist with its gravest destructive effects. The skin, in these cases, more commonly of the face, hands, or forearms, less often of the feet, legs, and genital regions of the aged, is covered with thin, horny,

often greasy looking, pin-head to nail-sized and larger, dark yellowish plates or scales, between which the integument which has undergone the atrophic changes in the senile skin, is visible. Pigmented puncta and maculæ may also appear, scattered irregularly over the surface, with rough, dirty yellowish to dark brownish, granular accumulations upon the skin of certain regions, such as the clefts beside the alæ of the nose, the temples, etc. The appearance is quite suggestive, in some cases, of a *seborrhœa sicca* of the face. In many of the patients exhibiting these features a fully developed papillomatous, superficial, or deep epithelioma may be present. In other cases one or more varieties of the senile wart may be visible, as described in the chapter on verruca.

Viewing the subject of senile keratosis in the light of the knowledge had upon the subject to-day, it must be admitted that the boundary lines between it and epithelioma are not well established. Unquestionably the exaggerated lesions of the former disease are frequently the first stages of the latter, and the treatment of the skin of the aged, conducted on the general principles already set forth, should never lose sight of the possibly serious consequences in one or more regions of the skin affected.

Molluscum Epitheliale.

Lat. *molluscus*, soft.

Epithelial Mollusca are smooth, globoid or acuminate bodies, situated either within or upon the skin, and in the latter case either sessile or pedunculated, varying in color from a yellowish-white to a dark pink, and in size from that of a pin-head to that of a bean.

Symptoms.—Molluscum Epitheliale, a disease first recognized by Bateman, in 1817, under the title MOLLUSCUM CONTAGIOSUM, is to be distinguished from another, known for a long time as molluscum fibrosum. The two disorders are quite distinct, and no longer to be confounded by a similarity in their names.

Typical mollusca are firm, roundish bodies, averaging in size the dimensions of a pea, and in color varying from a waxy whitish hue, nearly that of the integument, to the dark red tint of all injected masses. They are either imbedded in the skin, or project from it in semi-globular tubercles, sessile or pedunculated. Usually a dark-colored aperture can be detected at the apex or side of the lesion from which, on pressure, milky and curd-like, semi-fluid contents can be made to exude. Occasionally inspissated, or even horn-like masses project from these orifices, as though forced out by a *vis a tergo*. The disease is rare, and the lesions usually single and isolated, though hundreds may appear upon the person of one individual. They consist of semi-fluid collections derived from that portion of the rete which either lines the sebaceous glands or penetrates between the papillæ of the derma; or are actual transformations of the glands into cornified amorphous deposits, surrounded by thickened parietes. They may be artificially removed; or be shed spontaneously; or inflame,

suppurate, and result in circumscribed abscesses; or terminate by ulceration. Most often they are insidious and slow of development; and may persist for years without producing annoyance or subjective sensation. They occur on the face, the side of the neck, and the nucha; on the penis and scrotum of men, and the breast and labia of women; on the trunk; on the flexor surfaces of the extremities, and the dorsal surfaces of the hands and feet. They are most common in children. In consequence of the depression of the centre of the little tumors (which Hutchinson has aptly likened to small pearl buttons), they may suggest the lesions of variola, and are hence described by French writers under the term, *VARIOLIFORM ACNE*.

FIG. 40.



Molluscum Epitheliale. (After ALLEN.)

Hebra, Virchow, and Nicolaysen have reported colossal mollusca, as large as an orange or a small cocoanut. Microscopical examination of these gigantic lesions demonstrated their identity with the smaller tumors. Similar smaller bodies have been found interspersed among epitheliomata.

Etiology.—In England, where the disease was first recognized and where, according to Hutchinson, it is far more frequent than on the continent of Europe, the belief in its contagiousness is quite generally accepted. Excellent authorities are, however, divided upon this question. At present, therefore, it can only be definitely stated that

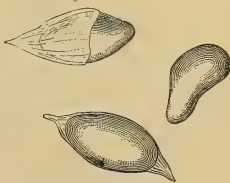
the contagiousness of molluscum is not yet established. If contagious, the lesions certainly possess this power of transmission in a feeble and imperfect degree, one much inferior certainly to other lesions recognized as contagious. Retzius, Vidal, Peterson, and Wigglesworth succeeded in producing the disease by inoculation of the contents of molluscous tumors. Allen, in an interesting communication upon the subject,¹ reports an abortive result from an inoculation practised in two places upon himself by Dr. Bulkley. He reports fifty cases observed among children in an infant asylum of New York City, and expresses himself strongly in favor of the contagious character of the disease. Experiments with inoculation have been, however, often unsuccessful. The proofs of contagion rest chiefly upon the circumstance of lesions observed simultaneously or successively on the breast of a mother and the mouth of her nursling, as observed by both Bateman and Allen, or upon the successive development of mollusca in several members of one family. These are possibly explicable as coincidences. Fox, of New York, has called attention to an interesting relation which would seem to subsist between mollusca and verruca, or ordinary warts. If simple warts are ever shown to be in a feeble degree contagious, it can scarcely be doubted that a demonstration of the contagiousness of mollusca will soon follow. According to Kaposi, eczema, sweating, pruritus, and maceration of the skin, predispose to their occurrence.

There are not sufficient grounds for assuming that, in adults, they are always associated with venereal disease. They are not rarely seen in large numbers upon the scrotum of youths who have never exercised the sexual function.

Pathology.—Upon section, a typical molluscous tumor is found to contain either a thick caseous fluid, or a mass of smooth, whitish, and roundish bodies, which are often clustered about a short stalk. Microscopically, these are seen to be composed of epidermal masses, fat globules, and peculiar bodies of oval shape, partly or wholly contained in an epithelial pod, the so-called “molluscous corpuscles.”

The origin and significance of these corpuscles have been the subject of a great deal of careful investigation with no little divergence of opinion as to the result. The disease has been consequently regarded by many authors as one concerning the sebaceous glands, and the fluid or more or less solid contents of the tumors as the result of the various metamorphoses which the pent-up secretion of those glands underwent. By such authors, the disease is termed “molluscum sebaceum,” “contagiosum,” etc., and is classified with the sebaceous gland disorders.

FIG. 41.

Molluscous corpuscles.
(After KAPOSI.)

¹ Journ. of Cutan. and Ven. Dis., August, 1886.

But the later studies of Retzius,¹ Lukomsky,² Renaut,³ Vidal,⁴ and Thin⁵ make it clear that the disease is one which concerns chiefly the rete mucosum of the epidermis. The name molluscum epitheliale, first suggested in this connection by Virchow, in the title epithelioma molluscum, is hence seen to be appropriate in the designation of the disease.

Molluscous tumors may evidently take origin either in the portion of the mucous layer whose involution forms the lining membrane of the sebaceous gland, or in the prolongations of the rete downward between the papillæ of the corium where there is no follicle. In either situation, the molluscous elements are earliest recognized as simply enlarged epithelia which assume, as a consequence of this enlargement, a globular form. In the midst of these, there are certain individual elements which acquire a granular appearance, the granular masses finally giving place by union to a globoid or oval-shaped body, large, shining, and stratified or homogeneous. This is the molluscous corpuscle which represents a colloid metamorphosis of the original epithelia. According to Ranvier, the stratum granulosum of the epidermis is composed of elements which contain minute particles of a substance called eleidine, the keratogenic material by whose transformation the stratum corneum is actually produced. This substance Renaut declares to be abundantly deposited in the enlarging corneous globes characteristic of molluscum; and the process is by him shown to be identical with that occurring in the transformation of the elements of the mucous into those of the horny layer of the skin. The pathological resemblance of certain molluscous bodies to epithelioma is thus very clearly suggested.

According to Thin,⁶ the internal root-sheath of the lanugo follicle is the original source of the disease, whence molluscous elements pass to inoculate, at various points about the follicular orifice, the adjacent epidermis. The coalescence of these points forms the tumor, in the course of the development of which the lanugo hair is shed, and the sebaceous gland disappears.

Auspitz denies that the transformation of the prickle-cells of the epidermis into molluscous bodies has anything in common with colloid or amyloid degeneration. Robinson classes the disease with the new growths. At present, we must be content with recognizing the molluscous corpuscle as the result of a transformation undergone by the prickle-cell.

Diagnosis.—Mollusca resemble the lesions of variola more than any other cutaneous phenomena. They are, however, readily distinguished from the latter by their chronicity, their semi-fluid contents, the absence of febrile symptoms, and the career of the variolous pustules. From warts they are also differentiated by their contents, hemispherical shape, and the dark punctum almost invariably present on one part or another of the lesion.

¹ Viertel f. Derm. und Syph., iv. Hft. 3, 1877.

² Lyon Méd., July 25, 1880.

³ Journ. of Anat. and Phys., vol. xvi., 1881; and Brit. Med. Journ., Jan. 15, 1881.

⁴ Loc. cit.

⁵ Virchow's Archiv, Bd. lxx.

⁶ Soc. de Biologie, 1877-1878.

Molluscum epitheliale in no way suggests molluscum fibrosum, with which it has only been confounded in consequence of the similarity in the two names. The tumors of molluscum fibrosum are

FIG. 42.



The author's rare form of molluscum verrucosum. (From a painting in oil.)

solid new growths, usually occurring in great numbers upon the trunk of individuals in adult years. They may attain enormous dimensions of several pounds weight, and though in cases they de-

generate by ulceration, they never have the curdy contents of molluscum sebaceum.

Papillary warts are to be distinguished from mollusca, though without question lesions are to be occasionally seen of a type intermediate between the two forms. Warts are to be recognized by their general papilliform character, and their evident relation to the papillary layer of the corium overlaid by a thickened stratum corneum.

Physicians are occasionally consulted by patients who have discovered mollusca upon the genitals, and who suppose these lesions to be of venereal origin. An error in this respect can scarcely be committed by the expert. Neither the solid papule of the initial lesion of syphilis when observed on the skin of the penis, nor the pustule and resulting ulcer of the chancroid are ever characterized by the particularly waxy look of genital mollusca with their depressed puncta. In such cases, the inguinal glands should always be carefully examined, remembering, however, that a forcibly squeezed and cauterized molluscum may be accompanied by a sympathetic adenopathy.

Treatment.—Molluscous tumors may be removed by ligature, scissors, knife, curette, or the needle in contact with the negative pole of a galvanic battery, their contents having been previously expressed. When desired, the surface may be first chilled or frozen with the ether spray, to diminish the pain of the trifling operation. Bleeding is easily arrested by a pledget of lint. Occasionally the point of a crayon of nitrate of silver may be introduced, after their removal, either to check hæmorrhage or to insure destruction of the cyst. According to Hebra, the return of the complaint, when it occurs at all, may be expected at points where no tumors have been removed.

When the lesions are small and numerous, they may be made to exfoliate by the local application of green soap. Removal of the larger lesions may be followed by minute cicatrices.

Prognosis.—The disease can always be terminated by removal of the tumors—the process to be repeated in case of recurrence. Cicatrices, when these result, are of trifling moment.

Callositas.

Lat. *callus*, hard flesh.

A callosity is a whitish-gray, yellowish-gray, or brownish, semi-transparent, localized and circumscribed thickening of the epidermis of the skin, due to hypertrophy of its horny layer, most commonly occurring upon the hands and feet.

This condition is also termed TYLOSIS, and the callosity itself, TYLOMA. Callosities are superficial, circumscribed, dirty white, yellowish-white or darker, flattened, thickened, and horny patches of epidermis, dense in structure and usually insensitive. A section of the plaque shows it to be largest at the centre and least at the periphery. They vary in size from a finger-nail to a section of a hen's egg, being at

times larger ; and occur chiefly upon parts of the integument subjected to long-continued intermittent pressure, as the hands and feet ; also upon parts stretched over osseous prominences, as those over the ischia. They may be complicated by hyperæmia, fissure, acute inflammation, or erysipelas ; and readily serve as foci of cutaneous disease (eczema, psoriasis, etc.). They are commonly encountered among mechanics, carpenters, shoemakers, etc. ; among persons wearing ill-fitting shoes (heel, ball, or big toes), stockings, or surgical apparatus ; among workers in metals, acids, or heated substances ; and among musicians (harpers, banjo-players, etc.). They are produced by such external causes as pressure, friction, chemical agents, and heat. By careful consideration, they can be readily distinguished from eczematous, psoriatic, and ichthyotic patches, being always limited to the sites of external contact.

They are said to be so characteristic of the several professions and trades, that by their locality alone they point in many cases to the occupation of the individual who exhibits them. Often they are, in these cases, essential to the prosecution of such work ; and their removal would only expose a tender epidermis to the operation of an injurious pressure or friction.

They are, pathologically, pure hypertrophies of the stratum corneum of the epidermis, the deeper layers of the latter as also the corium and subcutaneous tissue being quite unaffected.

Callosities require treatment only when they are sources of pain or discomfort. They may be removed ; surgically, by the knife ; chemically, by the destructive action of acids or alkalis ; rationally, by disuse of the part to an extent sufficient to interfere with the operation of the cause. When painful, they may be poulticed. A nightly soaking of the part with warm oil, kept in contact with the thickened epidermis during the hours of sleep, by a compress of flannel saturated with the same substance, will in the end always soften the induration.

CALLOSITAS OF THE HANDS, WITH UNUSUAL COMPLICATION [reported by Dr. Morrison,¹ of Baltimore], is illustrated by the case of a negro who was engaged in stoking the fires of a steamer. In this instance the combined effects of heat and friction resulted in ulcerations beneath the callosities which eventually produced necrosis and fall of some of the phalanges. This patient recovered as soon as the hands were properly protected, a fact which seems to justify the assignment of this and similar cases to a class apart from those which follow.

PERFORATING ULCER OF THE FOOT [Malum Perforans Pedi; Mal Pérforant du Pied]. This disorder, first named by Vesigné, has been studied by Messrs. Savory and Butlin,² Mr. Treves,³ Duplay,⁴ Michaud,⁵ and others.

¹ Journ. of Cutan. and Vener. Dis., Jan. 1886.

³ Lancet, Nov. 29, 1884.

⁵ Lyon Méd., 1876.

² Med. Chir. Trans., vol. lx., 1879.

⁴ Arch. gén. de Méd., 1876.

The name is an unfortunate one, since many cases to be classed only in this category, have neither ulcerative nor perforating symptoms.

The first symptom is a proliferative thickening of the epidermis, like a corn, usually single, occasionally multiple, appearing over a point of pressure (first or fifth metatarso-phalangeal joint, etc.). Inflammation and suppuration proceed beneath this thickening, spreading first to the soft parts of the sole and then to the bone itself. Gradually a sinus forms, reaching from the side of the corn to the deeper parts involved. Meantime the skin in the neighborhood becomes greatly thickened, heaping itself especially about the sinus. The ulcer which eventually forms is roundish, deep, and at times very destructive in its effects.

Thus far, the lesion might be supposed to be the result merely of a greatly irritated corn, but other phenomena exhibited in these cases are quite inexplicable in this way. The nails are altered; superfluous hair grows on the dorsal surface of the foot and the skin of the involved extremity; pigmentation, erythema, or eczema may occur; and the parts become affected with either anidrosis or hyperidrosis. These disorders have, again, been noted as the result of spinal injury, congelation, posterior spinal sclerosis, anæsthetic leprosy, and, in animals, after section of the sciatic nerve. Among the most common symptoms in typical cases are anæsthesia, neuralgic and rheumatic pains, hyperidrosis, and coldness of the feet.

The author has had the opportunity of studying this disorder in a group of cases which illustrate both extremes of its symptoms. The perforating ulcer occurred in the following case:

In the centre of a dense callosity which had formed over the right first metatarso-phalangeal articulation of a young man, there was exposed the orifice of a sinus which could not be made to close. The course of the disease was exceedingly indolent, the parts being the seat of little pain. The weeping from the sinus was scanty, and it was not surrounded by granulations. It was more an annoyance at first, than a serious disease. Finally, by the aid of a fine probe, it was discovered that the sinus beneath led to exposed bone. A deep incision was made at this point, and the osseous surface thoroughly scraped, after which antiseptic dressings were applied. The sinus, however, reformed in time; and it became finally necessary to amputate the toe and remove by the gouge a large portion of the head of the corresponding metatarsal bone. This operation proved successful in relieving the patient.

The case next described represents a group in which typical symptoms of the disease were marked without a tendency to ulceration. A servant maid, twenty-two years old, kept under observation in hospital for more than a year, had for several years previously, as also while under treatment, suffered from symmetrical recurrent tylosis of the soles of the two feet only, the hands being spared. A dense, thick, yellowish-gray cast of the entire sole of each foot was regularly shed every four months, leaving behind a soft, tender, and

irregularly mammillated epidermis. Persistent maceration of the feet for weeks at a time, poulticing, absolute disuse of the organs for months, mopping with from ten to thirty per cent. solution of caustic potash, applications of Hebra's diachylon salve, mercurial and tar ointments, were all futile in preventing the recurrence of the tylosis. After the cast of each foot was formed, the use of the organs was almost interdicted in the act of walking, on account of the pain which was induced.

The nail of each toe of both feet was roughened, scabrous, friable, and tilted up from the matrix so as to approach the vertical position. The hands were the seat of a persistent hyperidrosis, being constantly clammy and macerated with the sweat that poured from them. The pulse was slow, ranging from fifty to sixty beats a minute. All other functions of the body were properly performed.

In the group of cases to which reference is made above, there was always a symmetrical involvement of the entire sole or palm, either of both feet, or both hands and feet. The patients were young adults. The palms when involved never exhibited the translucent, yellowish, wash-leather-like appearance of the same condition of the soles, but rather suggested the dry, scaly features of the palms in certain forms of erythematous eczema of these parts, but always without itching, and always with coincident plantar tylosis. The soles, however, always presented the typical appearances of callositas throughout the entire region, the callosity reaching somewhat upward over the heel, and in some cases relatively sparing the instep. In some cases the nails were not involved. The feet were always as cold to the touch as in pernio.

Pathology.—The disease is, without question, a trophoneurosis. Histological examination has shown destruction of the myelin and axis cylinder of twigs of nerves supplying the affected parts. According to Messrs. Savory and Butlin, the sensory and nutrient fibrils of the involved nerves degenerate in consequence of pressure exercised upon them by increase of the endoneurium, the motor fibrils escaping, owing to their large size and thicker medullary sheath, a view plainly untenable for all cases.

Diagnosis.—The diagnosis is between tuberculosis and simple callositas, a distinction readily established by the evident neurotic phenomena seen in the so-called perforating disease of the foot.

Treatment.—Apart from the surgical interference called for by one class of cases, a roborant treatment, including the internal administration of iron and arsenic, has been followed by most favorable results.

The *Prognosis* is doubtful.

Clavus.

Lat. *clavus*, a nail.

Clavus, or Corn, is a circumscribed callósis usually found upon the toes, due to epidermal hypertrophy, and provided with a conical spur of horny tissue beneath, which is projected into a corresponding depression in the corium.

Corns are hypertrophies of the horny layer of the epidermis, with the peculiarity of presenting inferiorly a coniform prolongation, which, being pressed from without inward upon the sensitive papillæ of the corium, excites pain in various degrees. They vary in size from peas to large chestnuts, and are dense and callous when occurring upon those prominent parts of the foot where the boot, shoe, or gaiter, exercises its greatest pressure. When occurring upon the lateral face of a toe in apposition with another, the corn originates usually from pressure through the medium of the neighboring digits. It is then softer, from exposure to greater heat and moisture. Corns are often weather-sensitive, being unusually painful before, during, or after the occurrence of storms, and should therefore not be confounded with gouty or rheumatic deposits below the skin. They are composed of superimposed, and often concentrically arranged, layers of epithelium, between which are occasionally found minute hæmorrhagic extravasations. They are occasionally seen upon the palms of the hands.

At the periphery of the corn the corium is unchanged, but at the point where its central cone is pressed into the deeper structures, the papillæ are either atrophied or quite absent.

Corns are rationally treated by disuse of the feet, or the adjustment of properly fitted coverings for the same. They usually fall spontaneously after an attack of paraplegia and in the case where the lower extremities are confined for a few weeks in surgical apparatus for relief of a fracture. They may be softened by prolonged maceration in water, poultices, or, best of all, oil, as in the treatment of callosities. Erosion and excision may be practised, if demanded by an exigency. Where the sufferer must necessarily continue the use of the foot, the simplest and best treatment is as follows: The part is thoroughly macerated for half an hour, with water as hot as can be tolerated. Then the projecting callous portion of the corn is gently removed by cutting or scraping, till, as nearly as may be, the surface is level with the plane of the adjacent skin. The part is then dried, and the entire surface, both of the seat of the corn and the adjacent integument, is completely covered with many narrow, short, and nicely adjusted strips of Maw's moleskin plaster. When the trifling operation and dressing are complete, the patient should bear firm pressure over the corn without flinching, and walk with perfect comfort. The plaster remains till it separates spontaneously, which is usually in the course of a few days. The corn is then macer-

ated at night with an oil poultice, as described above, and the dressing afterward reapplied, usually the second time by the patient. Persistence in this course is followed by complete relief if the coverings of the feet be properly fitted. Caustics, employed by many, are usually unnecessary when there is no ulceration of the hard corn; and are in this situation frequent sources of great distress. They are chiefly valuable in the treatment of the soft variety; but should always be applied with a skilled hand.

For this purpose, the crayon of nitrate of silver or acetic acid may be employed. The proprietary "corn salves" sold in the shops commonly contain the ointment of the nitrate of mercury, which also is a useful application to the soft variety of corn. The latter should be protected by the interposition of absorbent cotton or wool from contact with adjacent digits.

As a rule, the ringed corn-plasters sold in the shops are inferior to the dressing with the moleskin plaster described above, which is made to cover the entire corn. Anderson recommends the emplastrum salicylici for a similar purpose.

Cornu Cutaneum.

Lat. *cornu*, a horn.

Cornua, or cutaneous horns, are circumscribed hypertrophies of the epidermis, forming irregularly shaped, spur-like excrescences of different sizes.

Cylindrical, conical, straight or twisted, angular and otherwise irregularly shaped and sized corneous eminences, single or multiple, are occasionally seen projecting from the scalp, forehead, nose, lips, ears, penis, and extremities. They are named from their resemblance to the similar appendages in horned cattle, but widely differ from the latter, which are always implanted upon osseous tissue. They are formed of dense and massed columns of epithelia, often resting upon somewhat prolonged papillæ. Occasionally, on section, they exhibit the concentric arrangement of the epithelia seen in corns, but, unlike the latter, have reëntrant basal depressions into which the papillæ below penetrate. At times they are implanted in a dilated follicle, in which case the glandular elements participate in their formation. At times, also, they represent a corneous transformation of the epithelia which constitute warts. They are seen in all colors, but are often between a yellowish-brown and a brownish-black, with a fissured or wrinkled or longitudinally grooved exterior, like rough bark. They may be painless, or, like the other keratoses, become the seat of inflammation in various grades. They may be short or several inches in length. The largest specimen ever under the author's observation was seen by him in France, on the forehead of a man, where it had existed for fifteen years. It measured three inches in length. A few cases have been recorded in Chicago. They may be shed spontaneously, never to return or shortly to reappear. They occasionally develop into epitheliomata, as has occurred once

under the author's observation, in a gentleman over sixty years of age, whose epithelioma developed from a horn on the dorsum of the right hand, projecting about three-fourths of an inch.

FIG. 44.



FIG. 43.



Varieties of cutaneous horns.

At the meeting of the American Association of Genito-Urinary Surgeons in 1887, Dr. Brinton, of Philadelphia, exhibited an anteriorly curved horn one and seven-eighths of an inch long and three-eighths of an inch in circumference, removed by him from the glans penis of an elderly patient, no member present having then seen a similar growth in that locality. Only fourteen cases are on record of a similar growth in this situation.

In a horn growing from the lower lip of an elderly man exhibited at the author's clinic in 1886, the growth was longitudinally furrowed, and also at somewhat regular intervals transversely furrowed, presenting then the appearance of the joints of the sugar-cane.

Pathologically, these hypertrophies are first developed either within a closed atheromatous cyst, or from remarkably elongated papillæ of the corium. They are made up of cornified and hypertrophied epidermal cells.

Horns may be removed by extirpation, after which the surface upon which they were implanted should be carefully and completely cauterized.

Verruca.

Lat. *verruca*, an excrescence.

Verruca, or Warts, are pin-head to bean-sized and larger, soft or hard, circumscribed elevations due to hypertrophy of both the epidermis and papillæ of the skin.

Warts are cutaneous excrescences; sessile or pedunculated; pointed or flat; smooth, rugous, or having a cauliflower appearance; pigmented in various shades, or of the natural color of the skin; congenital or developing after birth. They may be single or multiple, and occur upon the hands, feet, face, scalp, neck, genitals, and other parts of the body. They may develop slowly or rapidly, and persist for years, or disappear without apparent cause. They may be soft, dense, or even corneous to the touch.

The several names given to the various forms of warts have chiefly a descriptive value.

VERRUCA ACUMINATA (condyloma) is a filiform, papilliform, or cock's-comb-like vegetation. They are single or multiple; at times hundreds coexist upon the genitalia and neighboring regions. In size they vary from a pin's point to a hen's egg, and may be larger. They are apt to be moist and secreting, being frequently covered with a puriform mucus of exceedingly nauseating odor. Upon the genitals, they are encountered upon the glans, around the frænum, and over the prepuce of men; and in women, about the clitoris, labia, vagina, and anus. They are usually of a bright red color in these situations. When occurring upon the integument, they are firmer, drier, and exhibit a feebler tendency to luxuriant vegetation. In this form they may be recognized about the axillary regions, the umbilicus, the interdigital spaces of the feet, and even the face. Dr. Heitzmann once informed the author that he had seen them covering the side of the chin.

VERRUCA CONGENITA and **VERRUCA ACQUISITA** are terms used to designate the lesions discovered at birth or later.

VERRUCA FILIFORMIS.—This variety of wart differs somewhat from the others, not only pathologically, as is noted below, but in its clinical features. They are slender, thread-like, often pedunculated masses, usually covered with a smooth and apparently unaltered epi-

dermis, occurring upon the neck, eyelids, chest, and ears of women. Kaposi concludes that they represent minute fibromata.¹

VERRUCA GLABRA is distinguished by its smooth surface.

VERRUCA PLANA is the flattened or globoid, smooth or rugous formation like a plaque or button, usually pigmented, and occurring upon the back.

VERRUCA SENILIS VEL PLANA.—These are bean- to coin-sized, smooth, and softish growths developed upon the face, trunk, and extremities of persons of advanced years. They are flat, usually pigmented, and have a granular aspect. They are readily separable by the finger-nail, and are then found to rest upon a reddish granular base. As the result of external injury (caustics, traumatism) they may become the starting-point of an epithelioma.

VERRUCA VULGARIS is the form most frequently seen upon the fingers and hands, as pin-head to pea-sized, usually discolored, papilliform excrescences.

Of the several varieties of warts it may be said, in general, that they are most frequently observed either on the hands or over the genital region; that they are usually discrete but may be confluent and form palm-sized and larger elevated plaques; that they may be soft, hard, smooth, rough, pointed, flat, brush-like, or like the comb of a cock; that they may vary from a pinkish to a blackish hue; that they may persist, occur in crops, or spontaneously disappear; and may grow with great rapidity [*Verruca Acuminata*] to a large size and involve any portion of the body.

Dr. Fox, of New York, has figured an interesting case in which warts occurred in lines tattooed on the skin of a young man.

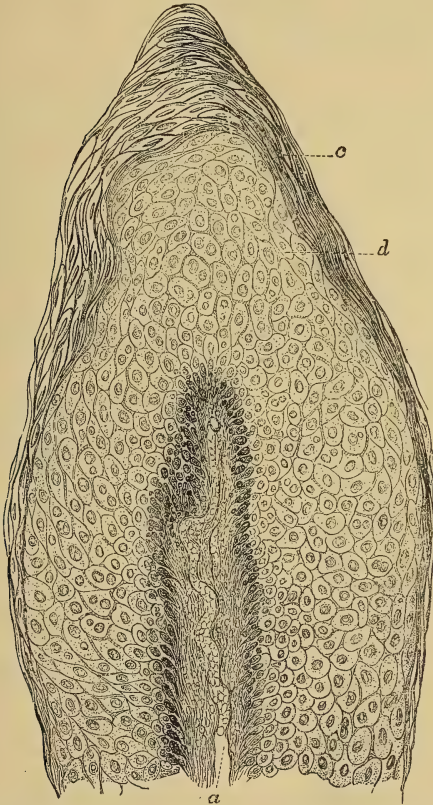
Etiology.—The causes of warts are unknown; but in early childhood, a period in which they are most frequently encountered, it is reasonable to conclude that they result from external contacts. It is when the child begins to handle everything within reach, that they usually first appear, and then about the hands. The acuminate or condylomatous warts are chiefly induced in parts moistened with a blennorrhagic secretion, but unquestionably may originate from contact with the leucorrhœal or pathological, non-venereal discharges from the female genitals. They are rarely seen in virgins of either sex. The senile warts are more probably due to obscure changes in the nutrition of the integument.

Pathology.—Warts on section exhibit, microscopically, an hypertrophy of the papillary layer of the corium concerned in their growth, with corresponding development of the vascular loops rising from the superior vascular plexus of the corium. Above these papillæ the rete is usually largely developed, the epithelia being multiplied not only on the sides of the prolonged papillæ, but immediately over

¹ See Dr. Taylor's observations as epitomized in the chapter on Fibroma.

their apices. In all the dry varieties the stratum corneum is also hypertrophied, but this more especially over the summit of the excrescence. The filiform warts are composed chiefly of a slender fasciculus of connective tissue springing from the bundles below,

FIG. 45.



Vertical section of the summit of a pointed wart. *a*, papilla containing vascular loop; *c*, stratum corneum; *d*, hypertrophied rete. (After Kaposi.)

enclosing a vascular loop and covered with an epidermis which is not apparently altered. Beneath all forms of warts there may be a substratum of sclerosed connective tissue, constituting the firm base upon which they rest.

The diagnosis of warts is usually readily made, but great care

must be had to distinguish the moist variety from syphilitic condylomata. In the latter there is usually a history of contagion with other syphilodermata upon the surface, such as mucous patches, palmar lesions, or papules of the face. Fibroma, or molluscum fibrosum, generally occurs in tumors of greater number, firmer consistence, and larger size. The tumor of molluscum epitheliale greatly resembles a wart, but the waxy-whitish appearance of the lesion and its dark punctum at one point or another, sufficiently distinguish it.

Treatment.—Warts may be removed by excision, erosion, or caustics (nitrate of silver, alkalies, acids, perchloride of iron, corrosive sublimate, etc.). The larger growths upon the genitalia are often highly vascular, and may demand the prior application of a ligature when they are pedunculated. Even the slender filiform warts will be found to contain a small vessel in the pedicle which requires cauterization after the excision. When the warts cannot be more readily removed by the knife or curved scissors, the Paquelin cautery may be used. The blackened eschar which is left prevents hemorrhage, serves as the best subsequent dressing, and is less apt to be followed by a return of the growth. In some cases, it is a useful expedient to transfix the lesion in several directions with the long needles used in gynecological practice, previously dipped in a fifty per cent. solution of chromic acid.

By far the simplest and most elegant method of removal, however, is to transfix the base of the wart a sufficient number of times with a needle connected with the negative pole of a galvanic battery, the positive being connected with the body of the patient by the aid of a moist sponge.

The formula, according to which are made several of the proprietary "wart cures" sold in the shops, is as follows:

R. Acid. salicylic.	℥ss;	2	33	M.
Cannabis indic. extr.	grs. v;			
Collodion	℥ss;	16		
Sig. To be painted over the wart with a camel's-hair brush.				

For patches of warts, Van Harlingen recommends attacking one part at a time cautiously with the following paste:

R. Pulv. acid. arseniosi	gr. vj;	40	8	M.
Ungt. hydrarg.	aa q. s. ad			
Emplast. hydrarg. }	℥ij;			

For warts not requiring operative removal, local treatment often answers well. Those about the genital region often disappear if persistently washed with a solution of tannin in alcohol, one drachm (4.) to three ounces (96.), after which they are dried and thoroughly dusted with boric or salicylic acid with lycopodium; or burnt alum and rosin; or, what is most popular, dry calomel. Alum and lead lotions may also be substituted for the tannin and alcohol, and for a time kept over the parts as a compress.

Prognosis.—Warts are benignant growths; and in childhood and early adult life need not suggest grave sequelæ. It is far different in advanced years, for, though these excrescences possess even then no malignant character, they are the too frequent precursors of epithelioma. While it may be urged justly that the early lesions in such cases were really epitheliomatous and not verrucous; the fact remains that many warty formations of apparently benign character do in advanced years, especially under the teasing of frequent cauterization, undergo a cancerous transformation.

MULTIPLE CUTANEOUS TUMOR ACCOMPANIED BY INTENSE PRURITUS.—Under this title Dr. W. A. Hardaway,¹ of St. Louis, describes a rare disorder characterized by the occurrence of about sixty pea- to nut-sized, dense tubercles and tumors covered by a thickened, scaly, and excoriated, often hæmorrhagic skin. In some situations coalescence had occurred, forming thus long and narrow plaques of nearly the width and half the length of the finger of an adult. The lesions were seen upon the outer aspects of the arms and legs, the palms and soles, the sides of the fingers, and around the ankles, wrists, and elbows. The accompanying pruritus was intense and intolerable; and, having lasted for twenty-two years, was naturally associated with the degree of pigmentation often observed under similar conditions. The patient was an unmarried woman, fifty-one years of age, and declared that the lesions first appeared as “blisters.”

Specimens of these tumors, examined by Dr. Heitzmann microscopically, exhibited hyperplasia of the epithelial and connective tissues. The papillæ were longitudinally elongated, branching, and provided with narrow capillaries. Numerous nests, greatly varying in size, and containing inflammatory elements with considerably enlarged bloodvessels, lay close beneath the papillary layer of the corium. These elements showed all stages of transition into basic substance. The deeper layers of the derma were built up of very coarse bundles of connective tissue and numerous elastic fibres.

PAPILLOMA.—This term has been loosely applied to a large number of cutaneous growths widely differing from each other, both histologically and clinically. It has been made to include the vegetations of syphilis, the neoplasms of nævus, and even the tubercles of lupus.

The designation, papilloma, is properly limited here to such circumscribed hypertrophies of portions of the skin as correspond with warts in their pathological significance. They may be defined as excrescences from the cutaneous surface, of a size considerably larger than all the varieties of the wart with the exception of the condyloma, usually presenting a luxuriant vegetation composed of elongated papillæ, bloodvessels, and enlarged rete, covered externally with a smooth epidermis like a pellicle, or, more commonly, branched

¹ Arch. of Derm., April, 1880, p. 129.

and tufted with the cauliflower aspect, and then usually covered with a puriform mucus. The tumor increases rapidly till it attains a maximum size, and then indolently persists. It is benign in character, and bears no relation to struma, carcinoma, syphilis, or lupus. It may occur upon any portion of the body. The cases observed by the author all occurred in women who were either pregnant or at the period of the menopause.

Verruca Necrogenica.

Verruca Necrogenica is a vesiculo-pustular or wart-like lesion situated usually on the hands, resulting from contact with the bodies of the dead, which may induce grave constitutional symptoms.

This lesion, also known as the "POST-MORTEM TUBERCLE," "DISSECTION TUBERCLE," or "ANATOMICAL TUBERCLE," was first named by Wilks,¹ verruca necrogenica. It commonly occurs on the fingers of those engaged in the habitual handling or dissection of cadavers, and is said to result both from such habitual contacts, and also from dissection wounds. Cases are reported where the lesion has had a non-cadaveric origin. It begins at the site of an abrasion or wound as a vesico-pustule, with deep-seated base and reddish or reddish-purple areola. This is productive of a burning, smarting, or pruritic sensation. The lesion accomplishes a period of bursting and crusting, which may be followed by complete involution. But when the typical so-called "anatomical tubercle" forms, the tissue becomes indurated and horny, and a pigmented verrucous papule or tubercle very slowly forms, which may become fissured at one or more points.

FIG. 46.



Verruca Necrogenica. Model
Guy's Mus. 19350.

The characteristic lesion is the thickened, indolent, more or less pigmented and fissured, split-pea to bean-sized wart, usually single, found on the finger of the anatomist.

In other cases, grave symptoms result either in the involvement of the deeper tissues (subcutaneous, thecal, tendinous, periosteal), or in the production of erysipelas, pyæmia, septicæmia, or gangrene. Surgeons divide these cases into mild and acute varieties, according to the symptoms exhibited. The records of the medical profession in almost every one of the larger cities of this country contain the names of one or more of its eminent representatives whose lives have been sacrificed in this manner.

It is probable that some one or more of the ptomaines, described on a preceding page, may be responsible for some of the results here mentioned.

Out of more than fifty-eight thousand cases of cutaneous diseases collected by the statistical committee

¹ Guy's Hospital Rep., 3d series, vol. viii., p. 263.

of the American Dermatological Association, but one instance was reported of verruca necrogenica. This does not, however, exactly represent the frequency or, better, the infrequency of the lesion, since the majority of all such accidents occur in the persons of anatomists and surgeons, who destroy their lesions themselves without consulting others on the subject.

The treatment of verruca necrogenica is destruction of the lesion with acid nitrate of mercury, nitric acid, or caustic potassa.

The prognosis is not necessarily grave.

Nævus Pigmentosus.

Lat. *nævus*, a mask.

Nævus Pigmentosus is a congenital, circumscribed pigmentation of the skin, in single or multiple deposits, either with or without textural cutaneous change, or associated with the development of warts, plaques, tumors, or pilary hypertrophy.

Abnormal congenital pigmentations of the skin vary in color from a light yellow or chocolate-brown to a blackish hue, and may be single, or multiple and very numerous. They are commonly termed PIGMENTARY MOLES. They vary in size from a pin-head to tumors of considerable volume; and are either ovoid or circular in contour, or so irregularly shaped as to present a fanciful resemblance to parts of the figures of the lower animals, whence the popular belief as to their origin in maternal impressions. They occur in both sexes; and upon the face, neck, trunk, thighs, buttocks, and external genitals. The term NÆVUS SPILUS is applied to those which occur in a smooth and otherwise unaltered skin; NÆVUS VERRUCOSUS, to those which are irregular and wart-like; NÆVUS PILOSUS, to those surmounted by a growth of shorter or longer, stiff or downy, dark-colored hairs; and NÆVUS MOLLUSCIFORMIS, or LIPOMATODES, to the soft or firm, more or less elevated and projecting tumors.

They may be, when multiple, symmetrically or asymmetrically developed upon the surface of the body; and in either case may exhibit in their arrangement the controlling effect of the nervous system. In a case reported by myself¹ there were multiple monolateral pigmentary nævi distributed over the left side of the trunk in the course of the intercostal nerves, and in such a manner as strongly to suggest to the eye their correspondence in site with the lesions of zoster of the same region. De Amicis² had previously reported a somewhat similar case.

The course of pigmentary nævi, after obtaining their full evolution, is to persist unchanged for a lifetime. Their increase in tender years is occasionally characterized by a relative rapidity. The author has seen a pilary nævus upon the cheek of an infant extend over nearly double its original area in the course of two years.

¹ Chicago Med. Journ. and Exam., October, 1877.

² Lo Sperimentale, March, 1876.

The lesions of this sort seem to occur with equal frequency in the two sexes. It is possible that they may be acquired after birth, as claimed by some authors, but it is much more probable that such presumably acquired cases were instances of rapid development from minute congenital pigmentary moles.

A case of unusually large congenital nævus lipomatodes associated with multiple pigmentary nævi of several forms occurring in a child, was observed by the author in 1883, the report of the case made subsequently being illustrated by a chromo-lithograph.¹ (See frontispiece.)

Pathology.—Anatomically, pigmentary moles are readily separable into two classes: first, those in which the pigment only of the skin undergoes hypertrophy (*nævus spilus*); second, those in which both epidermis and corium are hypertrophied, forming verrucous, pilous, mollusciform, and other lesions. The distinction made by V. Bärensprung, Gerhardt, and others, between these two classes and still a third, where the lesions are limited to the cutaneous regions supplied by one or several nerves (*Nævus Unius Lateris*, *Papilloma Neuropathicum*) is more apparent than real: for a close study reveals a tropho-neurotic influence exerted in all cases, even in the enormous tumors of a mollusciform type. According to Demiéville, the pigment accumulation occurs in the corium as well as in the epidermis, in the form of ribands stretching along the lines of the bloodvessels.

Pigmentary moles very rarely disappear spontaneously. Their removal may be accomplished by excision, or by destruction with caustics, with the Paquelin knife, or with the needle by electrolysis. The last-named method is applicable only to the smaller and more superficial growths of this class. Fox² calls attention, in connection with this subject, to the need of passing the needle no deeper than the epidermis, sufficiently deep merely to "blister the surface of the black spot."

Xerosis.

Gr. ξηρὸς, dry.

Xerosis is a congenital dryness and roughness of the epidermis accompanied by a moderate degree of furfuraceous exfoliation.

XEROSIS, also termed XERODERMA, is a term which has been applied to the disease sometimes known as *xeroderma pigmentosum*, or the *melanosis lenticularis progressiva* of Pick. In these pages that disorder is described, in accordance with the nomenclature of the American Dermatological Association, as *angioma pigmentosum et atrophicum*.

The term xerosis, or xeroderma, has also been employed to designate a simple asteatosis. It is also used by some authors as practically equivalent to ichthyosis. It is sought here to limit its application to

¹ Journ. of Cutan. and Vener. Diseases, July, 1885.

² Electricity in Removal of Superfluous Hairs, etc., Detroit, 1886.

the description of a distinct and easily distinguished morbid condition of the integument.

Symptoms.—The sole symptoms found in xerosis are cutaneous. The skin of the body, in some regions more than others but at times universally, is to the touch of another, dry, harsh, rough, and destitute of natural moisture and unguent. Closely inspected, the surface is seen to be scaly, the exfoliation being of the character described as furfuraceous. In some cases the hand passed briskly over the surface of such a skin will cause a moderate separation of a few of the scales in a scanty shower; in yet others, while the surface seems quite fit for the furnishing of such free flakes of epidermis, one is surprised to note that the free flakes are more or less attached, and the clothing of the patient is not, as in some forms of psoriatic and pityriatic disease, covered with epidermal scales. In brief, there is not in progress a catarrh of the horny layer, as in some of the other disorders named; but merely an unusual keratinic transformation of the elements of that layer.

The parts chiefly involved are the extremities, more particularly the hands, feet, forearms, and legs; but all parts of the skin may be involved, including the face, temples, cheeks, and even the lips.

The disorder is met with in all grades, from the mildest physiological dryness of the skin, almost suggestive of the so-called "goose-flesh," to that state in which the exhibition of the face only, suggests an abnormal condition of the skin. The color of the latter in well-marked cases is always of a dirty yellowish or dirty brownish shade, suggesting the unwashed condition of the integument, and in extreme cases of older patients becomes rather deeply pigmented. It is seen in both sexes and at all ages, being a congenital condition whose first appearance is only clearly indicated after variable periods of time after birth. Red-haired individuals perhaps furnish the larger number of well-marked cases. The general health is unaffected. Before puberty the affection, in northern latitudes, will often be inappreciable in summer, and distinct in winter. As maturity is reached, however, the condition becomes more or less permanent.

This disorder may be, as described by some authors, a variety of ichthyosis simplex, but the following are excellent reasons for giving it a separate consideration:

1. The disease does not furnish the typical plate-like scales of ichthyosis.

2. One child affected with what appears at first to be merely xerosis, may exhibit a typical ichthyosis before puberty, while another will go through life, the xerosis of his childhood becoming simply the exaggerated xerosis of mature years, but never an ichthyosis.

Xeroderma may therefore be regarded in one sense as a variety of ichthyosis, but cannot be described as a stage of the latter disease.

The disorder is congenital, and may be inherited from parents. It is readily distinguished from all furfuraceous scaling diseases of

the skin by the absence of inflammation. The treatment and prognosis are those of the disease next considered.

Ichthyosis.

Gr. *ἰχθυόζ*, a fish.

Ichthyosis is a congenital deformity of the skin, developed first in early infancy, and manifested in a general scaliness, in the formation of regularly outlined polygonal plates, or in the growth of larger masses of a corneous consistency.

Symptoms.—The disorder, also termed the “Fish-skin Disease” and “Xeroderma,” is one which displays a wide variation in its symptoms. To the extremes in either direction two names are given, ichthyosis simplex and ichthyosis hystrix.

ICHTHYOSIS SIMPLEX.—The earliest and mildest form of ichthyosis simplex is, by many authors, held to be the condition of xerosis, fully described in the preceding pages. It will be remembered, however, that such a xerosis may persist through life without the production at any time of the peculiar symptoms of the ichthyotic skin. In these earlier manifestations of the disease then, the skin of the patient can merely be described as unusually harsh to the touch, moistureless, and covered with adherent or exfoliating, fine scales. The latter are not massed, imbricated, nor displayed in plaques, and are usually of a dull yellowish-white color. It is rare that the practitioner is consulted for the relief of this disorder; it is usually discovered when the skin is exposed for other purposes (exploration, vaccination, etc.). In a still more advanced degree, the scales are massed together, forming grayish and whitish, polyhedral elevations or plaques, regularly outlined and closely set together, especially upon the extremities and certain portions of the trunk. Elsewhere the scaliness described above may be present in a more marked degree. Variations occur, in consequence of which the plaques, bordered distinctly by the natural lines and furrows of the skin, are even depressed, centrally or completely, or assume darker shades of color than those described, brownish and greenish-brown.

ICHTHYOSIS HYSTRIX.—With and without the symptoms detailed above, the hypertrophy of the skin may, in circumscribed patches or larger areas, produce irregularly shaped, verrucous, corneous, corrugated, wrinkled, or rugous masses, usually much darker in color than the patches seen in the simple variety of the disease, and more often also discovered in adult years. The resemblance is here rather to the rough bark of a tree than to the scales of a fish. In other still rarer cases, the excrescences assume a spinous, acuminate, or horn-shaped form. The hand passed over the surface perceives not only the excessive roughness, but also the dryness of the skin. Perspiration is imperceptible in the parts affected. The nails are friable and indurated; the scalp scaly, and covered with hairs of exceeding

harshness. The palms and soles are often spared. Kaposi described certain diffuse callosities occurring in the palmar and plantar regions differing from the ichthyotic patches elsewhere. The face is usually spared, but, when involved, only the slighter manifestations of the disease appear there, minute, superficial, scaly patches of a grayish tint.

Ichthyosis is accompanied by insignificant subjective sensations. The skin, indeed, of these patients seems inapt for the eczematous and other complications of the less diffuse keratoses. The author has treated four ichthyotic patients for syphilis, and noticed in all a decided tendency to the production of lesions of the mucous surface without cutaneous efflorescence. The extensor are usually more implicated than the flexor surfaces of the extremities.

Singular variations from the types described above are noted by observers. Hilbert,¹ for example, in a case of congenital circumscribed ichthyosis in a young woman, discovered a growth of thick hairs over the left shoulder and arm, one centimetre long. Weisse² exhibited to the New York Dermatological Society a boy, ten years old, with hæmorrhagic fissures in an ichthyotic skin, double ectropion, corneous opacities, claw-like fingers, attachment of the ears to the sides of the head, and a generalized condition of the skin, which became very red when warm, some doubt, however, existing as to the diagnosis.

The most exaggerated types of ichthyosis are seen in the so-called "Porcupine," "Rhinosceros," or "Hedge-hog" patients. In these unfortunate beings, the entire skin is converted into a rugged, bristling, warty, quilled, or horn-like envelope, suggesting the integument of the animals named. Such conditions are represented by Mr. Henry Baker's case, described by Anderson.

The terms, *Ichthyosis Serpentina*, *Nacrea*, *Nigricans*, are employed to designate those conditions respectively in which is recognized a snake-like appearance of the skin, silvery whiteness of the scales, or a dark pigmentation.

Viewing the disorder as thus in various ways exhibited, it is seen to be a congenital deformity rather than a disease. It may be partial or general, though usually the latter, with intense manifestations over the extremities, especially over their extensor aspects, and relative immunity of the face, axillæ, groins, flexor aspects of the limbs, the palms and soles, the glans penis, and prepuce.

Like xerosis, the deformity is rarely visible at birth, but usually becomes apparent before the completion of the first year of life. It is first manifested in the region of election named above—*i. e.*, over the elbows and knees—and here also, as in xerosis, may be for some years only apparent in this latitude in winter, disappearing almost wholly in the summer season. In maturity, the deformity has been known to disappear also temporarily under the influence of inter-

¹ Virchow's Archiv, Bd. 99, Sept. 3, 1884.

² Journ. of Cutan. and Ven. Dis., 1883, p. 49.

current disease (variola). One patient is said to have regularly cast a slough of his integument in the autumn.

The general health is usually unimpaired.

ICHTHYOSIS CONGENITA.—This exceedingly rare deformity occurs as an intra-uterine modification of the skin of the foetus, which is usually brought into the world as a non-viable monstrosity. The skin is represented by a thick, horny cuirass, deeply furrowed, and resembling plates of armor. The ears, lids, and lips are usually wanting, and replaced by corneous folds suggesting in appearance the corresponding features of a mummy. The fingers and toes resemble talons and claws. Death usually occurs in the course of a few days from both inability to secure nutrition by the act of sucking, and by imperfect development of other organs than the skin.

Etiology.—Ichthyosis is unquestionably a congenital disease, though its first manifestations are only apparent during the second year of life. It is said to be generally hereditary, but this should be accepted with some reserve for every individual case. One of my ichthyotic patients was married to his own cousin, and had by her five children entirely free from cutaneous disease. None of his parents or grandparents was similarly affected. The disease occurs equally in both sexes, and is liable to aggravation in cold climates and the season of winter. The general vigor and development of patients thus deformed are, as a rule, quite unimpaired. Kaposi says: "The cause appears to be a local anomaly of the nutrition of the skin, especially involving its epidermic and fatty elements;" but this scarcely meets the requirements of etiology.

Thost¹ describes ichthyosis occurring in four generations. According to the ascertained genealogy, the ancestor first known to have suffered from this affection had five male children who inherited it, while one girl and one boy were spared. One of these diseased children had himself five children, of whom three males showed the disease, while one boy and one girl remained free. Another brother, of the second generation, had five male and three female children; of these, four boys and two girls became affected. One of the latter (of the third generation) bore four children, of whom three girls inherited the disease, while the fourth, a boy, escaped. It appeared that the affection always showed itself within a few weeks after birth, in the form of a roughness of the palmar and plantar surfaces. With the growth of the patient, the condition constantly increased in severity, the epidermis shedding in large shreds until the disease reached its maximum by the fourteenth year. There was a marked disposition to excessive sweating, particularly in the diseased localities; the sensibility of the skin remained normal. Microscopic examination showed, in addition to the hypertrophied papillæ,

¹ Inaug. Diss. Heidelberg, 1880; Cbl. f. Chir., No. 10, 1881.

great development of the sweat glands, with marked thickening of the ducts. Treatment failed to give more than partial relief.

In the Molucca Islands and some other isolated regions, ichthyosis, on account of its unusual prevalence, has been regarded as an endemic affection. But instances of this kind are readily explained, without referring to climatic influence, by the operation of the laws of heredity with intermarriages.

FIG. 47.



Ichthyosis hystrix, vertical section; *a*, masses developed from the stratum corneum; *b*, cones formed by the rete; *c*, hypertrophied papillæ with dilated vessels; *d*, dense connective tissue of corium, exhibiting numerous vessels transversely divided. (After Kaposi.)

Pathology.—The diseased, or, better, deformed, skin is found microscopically to be hypertrophied in various degrees according to the development of the malady, the proliferation of its elements occurring in connective tissue, papillæ, stratum corneum, and blood-vessels. In well-marked cases of ichthyosis hystrix, the elongated papillæ are surmounted by dense cones of the horny layer of the epidermis, more or less concentrically disposed, with sclerosis of the connective tissue, and a relatively unchanged rete. In this last particular, the dense plaque of ichthyosis differs in texture from the wart.

The polygonal ichthyotic plates are composed for the most part of

corneous epidermal cells, their long axes parallel with the surface of the skin, with an unusual accumulation of pigment granules between the strata. The interpapillary cones are enlarged; the horny layer greatly thickened, the hair-follicles indurated, the papillæ elongated but not branching, and their bloodvessels dilated. The sebaceous glands are frequently converted into cyst-like bodies, the coil-glands distended, and the panniculus adiposus diminished in size.

Diagnosis.—Ichthyosis not only presents features which are so characteristic as to be unmistakable, but also those which can be well-nigh perfectly portrayed in plates. In this respect it differs from a long list of cutaneous maladies.¹

Whenever necessary, aid of an important character can be gained in the history of the disease and in the entire absence of the lesions and lesion-sequelæ, exhibited in the exudative and sealing affections heretofore considered. The most conspicuous characteristic of ichthyosis, as distinguished from psoriasis, lichen ruber, and pityriasis, is the absence of inflammatory phenomena.

Treatment.—The younger the patient applying for relief, the larger are the chances of improvement and possible recovery. Ichthyosis hystrix of mature years is practically incurable. Internal treatment is valueless. External treatment is directed to softening, macerating, or anointing the skin, and, as far as practicable, preserving it in a softer state. This is accomplished by frequent baths, alkaline, vaporous, or combined with the use of soap or green soap, and generally followed by an anointing with vaseline, dilute glycerine, or lard. The French, after the removal of the denser layers of the horny plates by the aid of soft soap and water, anoint the body by friction with the glycerolate of starch. Almond, cod-liver, neat's-foot and linseed oils, or lanoline may be used after the bath. Only by the most assiduous perseverance is a desirable result obtained and permanently secured. In the severer hystrix varieties, the most annoying projections and rugosities may be removed by excision, the Paquelin knife, or, less preferably, by the aid of caustics.

Subcutaneous injections of one-third of a grain (0.022) of pilocarpine have been practised in ichthyosis, in order to induce sweating, with a view to the maceration of the skin. Van Harlingen recommends the following for use when the epidermis begins to shed after the external application of soft soap:

R. Potass. iodid.	℥j;	1 33	
Ol. pedis bubuli }			
Adipis }	āā 3ss;	16	
Glycerin.	3j;	4	M.

Anderson recommends the wearing of pure vulcanized India-rubber garments, a method of treatment which the author has found too exhausting for all cases.

Taking a general survey of the therapeutical management of ich-

¹ The admirable representation of the ichthyotic skin in plate F, of Dühring's Atlas, is faithful in its exactness.

thyosis and its results, the course to be advised for the majority of patients is very clear. With but few exceptions¹ the subjects of this deformity are either entirely relieved, or greatly better in hot weather and moist atmospheres. Under these circumstances, and having regard to the essential fact that the deformity is life-long in duration, patients should always, when practicable, select for permanent residence a climate most conducive to the comfort of the skin. There is no step which the ichthyotic patient can take at all comparable in value with the important selection of a suitable environment.

Prognosis.—Having in view the facts set forth above, it will be clear that in no case can a favorable result be anticipated with respect to a “cure” of the deformity. Treatment, persistent, prolonged, and properly directed in connection with suitable climatic influences may do much to improve the condition of the skin.

Onychauxis.

Gr. *ὄνυξ*, a nail; *αὐξέω*, to grow.

Onychauxis, or Hypertrophy, of the nails is an abnormal development of these appendages of the skin in any diameter.

Symptoms.—The nail substance may be developed to an unusual extent either as an idiopathic or symptomatic affection, and in each case may be simply increased in volume, extent, or number, or exhibit such increase in connection with secondary changes. Thus the nail may develop to an extraordinary length or breadth, preserving its general character as regards texture, color, and position; or it may also be changed in any particular, becoming opaque, discolored, dirty yellowish, and blackish or brownish; rugous, furrowed, horny, and rigid; thickened in one part and thin, vitreous, and extremely fragile in another; tilted to one side or another on its bed; or projected backward in recurved, irregular lines. Finally, the matrix may be inflamed, suppurating, hæmorrhagic, and the seat of an excruciating pain. One or more of the nails may be affected; in some cases the entire twenty are similarly involved.

The diseases in which these changes occur as symptomatic lesions are numerous, since it is evident that the matrix, from which the nail is produced, would scarcely enjoy immunity in the case of profound alteration of the skin in its vicinage. Thus eczema, lepra, psoriasis, lichen ruber, syphilis, scarlatina, perforating disease of the foot, variola, and other diseases are attended by changes of various grades of severity in both matrix and nail.

The condition termed PARONYCHIA, is that in which one or both lateral borders of the nail bury themselves deeply in the tissues adjacent, producing thus an exquisitely tender and painful state of the soft parts, which may suppurate or surround the attached limb of the nail with exuberant granulations. This is more frequently

¹ While these pages are in preparation, the author has been consulted by an intelligent patient who positively asserts that her ichthyosis is always aggravated by warm weather.

observed in the nails of the toes, as the appendages of the skin are liable to injury from the pressure of ill-fitting boots, gaiters, and shoes. In the condition described as *ONYCHIA*, the matrix is not only inflamed, but the nail substance is, as a consequence, texturally changed. No strict line of demarcation, however, can be described between the two conditions. The term *ONYCHOGRYPHOSIS* has been employed to describe the contorted deformities which cause it to resemble a claw.

ONYCHOMYCOSIS is the name given to that condition in which the nail substance is invaded by vegetable parasites. In such cases, the nails become opaque, discolored, and thickened, with a noticeable friability at the projecting border.

In *SYPHILITIC ONYCHIA*, one or several of the nails may become affected, though it is quite characteristic of the disease to exhibit limitation to the extremity of a single digit. In such cases, there is usually a very marked involvement of the peripheral soft parts, which may be infiltrated with gummatous material. The bullous syphiloderm, of the congenital manifestations of the disease, will at times form beneath or quite near the nail, and thus endanger its integrity. In both forms, ulcerative results are common, with secretion of a foul discharge.

In the affection termed perforating disease of the foot, all the nails of the feet may exhibit a characteristic onychauxis.

Traumatism (constant or intermittent pressure of shoes) may augment the size of the nail in one or another diameter; and the deformed talons resulting from gross and long-continued neglect (East Indian devotees, etc.) are illustrations of another type of hyperplasia. Supernumerary nails may be found on supernumerary fingers and toes; or double organs on a single digit; or in unusual situations as over the scapula (Tulpius); or on a digital stump; or in an ovarian cyst.

With respect to onychauxis proper, two forms are recognized. In the first, the nail-cells are more closely set together and the resulting hypertrophy is declared, not in changes in bulk of the nail, but in a dense, thick, opaque, glossy, grayish-white transformation of the organ. It is perceptibly increased in weight and becomes so solid that it cannot be cut by ordinary implements. It may be also, though not changed in bulk, altered in shape, its free border curved downward or upward.

The second form represents a visible hypertrophy in bulk, the nail being enlarged in one or several diameters. Enlargement in a transverse diameter necessarily involves the soft parts adjoining. Vertical hypertrophy results in any one of the claw- or talon-like forms of onychogryphosis.

Etiology.—Onychauxis may be congenital or acquired; idiopathic or symptomatic; and due to inflammatory changes in the corium or matrix of the nail; to traumatism; to defective hygienic care of the general surface of the skin including the nails; and, perhaps, in exceptional cases, to senile influences.

Pathology.—According to Geber, there is in gryphotic nails a tolerably uniform consistence superficially; and in the deeper strata a harder or softer substance arranged in fan-like layers. In the former region, the nail is made up of small, roundish, or flattened cells containing variously sized dark granules. These have a linear arrangement along the longitudinal axis, and, in places, as along the higher transverse ridges, are more closely aggregated. More deeply the cells are irregularly grouped. According to Virchow, they contain, centrally, horizontal masses of horn, which descend laterally, including the so-called “medullary spaces.” These are sharply defined loculi filled with a homogeneous, lustrous, yellow, or finely granular mass; and in them may be found epidermal cells in process of keratinization.

When the nail is lifted off, the bed looks short, arched, and narrow. Beneath the epidermis accumulated upon the surface, the hypertrophied ridges, longitudinally arranged anteriorly, and the papillæ more particularly, become visible, the latter containing large vascular loops surrounded by a small-celled infiltration.

Treatment.—The treatment of the disorders of the nail described above, is largely that of the maladies in which they occur. Arsenic and iron are often indicated in these affections; and their influence upon the nutrition of the nail cannot be questioned. In syphilitic onychia, the constitutional treatment of the disease is essential. The cutting, scraping, and trimming of the nail by the aid of the useful instruments found in the chiropodist's case, supplied by most surgical instrument makers, are important measures in many cases.

The treatment of ingrowing toe-nail varies with the extent of the disease. In mild cases, soft threads of charpie are insinuated between the offending border of the nail and the tender granulating surface upon which it presses. Counter-pressure by plaster and the local use of the crayon of nitrate of silver, may be at times employed with advantage. In severer cases, the nail may be removed, though this is generally unwise. The method of treatment devised by Agard, of California, often produces the speediest results. The soft parts are, by him, completely removed from the side of the nail by means of a thin-bladed bistoury; and the nail permitted to grow down upon one side of the extremity of the distal phalanx, thus protecting the cicatrix and radically preventing the recurrence of the disease.

The proper dressing of the feet in onychauxis of the toes is a matter of great importance. The shoes and socks, or stockings, should be adjusted both as to texture and shape to the special requirements of each case. After the hypertrophied tissue is largely removed by cutting or scraping, the phalanx may be enveloped in a plaster-mull or salve-muslin of diachylon ointment, or with mercurial plaster, and the whole covered with a leather or rubber cot.

The *Prognosis* in these disorders of the nails rests entirely upon the nature of the malady in which they occur. Idiopathic and localized changes, as also those occurring in transient cutaneous diseases (*e. g.* the exanthemata), often terminate favorably. In severe

constitutional or grave cutaneous diseases, the outlook is less promising. The diseases of the nail are usually more obstinate and less amenable to treatment than the similar affections of the softer parts. In cases where there is congenital disease of the nails, a prognosis should be made with reserve.

Hypertrichosis.

Gr. *ὑπερ*, in excess; *τριχ*, hair.

Hypertrichosis is a development of the pilary filaments, exaggerated as to size or number, or unusual either with respect to the location of the growth, or the age, or sex, of the individual in whom it is displayed.

Hypertrichosis, Hypertrophy of the hair, Hairiness, or Hirsuties, may be congenital, and this in various grades. It is sufficiently common to see infants at birth provided with extremely long hairs of the hairy parts of the body, such a growth being usually replaced later by shorter filaments. Universal congenital hirsuties is a rare deformity, the entire body being then covered with longer or shorter downy hairs of various colors.

Acquired hirsuties may be partial or universal, much more commonly the latter. Thus the hairs of the scalp or beard may acquire an enormous vigor and length, reaching fully to the ground when the figure is in the erect position; or the hypertrophy of the hairs may affect the face of the child or woman, and in this sex, either the upper lip, chin, cheeks, or all portions of the body usually covered by hairs in man, be provided with a vigorously and symmetrically developed pilary growth.

Remarkable instances of universal congenital hirsuties are occasionally observed. The so-called "Russian dog-faced man" (Andrian Jettichjew) and his son, lately on exhibition in this country, were noteworthy illustrations of this anomaly. In most cases the influence of heredity is usually distinct and often accompanied by defective dental development, such as entire absence of molar or canine teeth. In all cases of hypertrichosis, whether congenital or acquired, the parts normally unprovided with hair, such as the palms, soles, ungual phalanges, prepuce, glans penis, upper eyelids, and vermilion border of the lips, are not the seat of the pilosis.

As the growth of the beard in man is more or less associated with the maturity of the sexual organs, so we often find the hypertrichosis of women and children related to a precocious, perverted, or arrested function of the generative organs. The reported instances of menstruation in female infants and children usually include a description of abnormal pilary development about prematurely developed pudenda; and after the climacteric period, when some women conspicuously begin in external appearance to resemble individuals of the opposite sex, either isolated, thick, bristle-like hairs develop over the chin or lips; or the extreme hirsute condition may be reached.

Duhring¹ has reported one such case, which is illustrated by an excellent lithograph representing the face of a woman provided with a superb beard.

FIG. 48.



The Russian "Dog-faced Man."

The influence of the sexual organs in the hypertrichosis of women is well demonstrated in the following case coming under the author's observation.

A married woman, thirty-three years of age, weighing one hundred and fifty pounds, mother of three healthy children, applied, in 1883, for relief of a general and facial hirsuties which had resulted in the growth of a full beard and moustache. She had not menstruated for more than a year, and had been pronounced by an expert past the climacteric. During the years 1884 and 1885 the author removed in successive operations the hairs of the face by the electrolytic method described below. Menstruation began while she was subject to the influence of the galvanic current in the operating-chair, and continued thereafter irregularly, at times with intense pain and even menorrhagia. In 1886, after the last of the operations on the face, she rather suddenly lost in weight, decreasing to one hundred pounds, and began to menstruate regularly and painlessly. The hypertrichosis of the general surface then disappeared by a simple fall of hair. In the latter part of the year she again conceived, and in

¹ Arch. of Dermatology, April, 1877.

March, 1887, being then quite free from any form of hirsuties, she brought a healthy male child into the world.

As the result of the local application of stimulating and oily liniments persistently and over a single region of the body (scapula, sacrum, sciatic notch, etc.) a growth of long and numerous hairs is often produced. Care should be had in the management of cases of acne and rosacea in the persons of dark-skinned young women with luxuriant hair upon the head, lest this growth be precipitated upon the chin, cheeks or nose.

In cases of hypertrichosis the hairs may be variously colored, and the hypertrophy of downy hairs be purely numerical, or result in increase in the actual size of the shaft of the individual filaments. In neither case do the hairs present any anatomical peculiarities of structure. The localized congenital form of hirsuties is often characteristic of certain moles, known as *NÆVI PILOSI*; and the surface of pigmentary moles (*NÆVI PIGMENTOSI*) is often very extensively covered with hairs of a dark color. Singular anomalies have been figured by a number of dermatologists where extensive regions (one or several limbs, the entire back, even the greater part of the body) were the seat of enormous pigmented moles, covered with warts, fibromata, and other benign tumors, and clothed with a thick covering of longer or shorter hairs.¹ All such cases exhibit a striking development in either symmetrically or asymmetrically disposed areas of distribution of cutaneous nerves.

Under the name *PLICA POLONICA* was formerly described a condition supposed to be a disease peculiar to the Poles (whence its name), but which has long been recognized as a result merely of persistent neglect, filth, the invasion by parasites, and consequent exudative disorders of the scalp. When it exists, the hairs form a huge matted mass on the crown of the head. Hebra has devoted some interesting pages to the superstitious awe with which this accumulation of hairs, lice, and filth has been regarded. Dr. H. M. Bannister, lately connected with the U. S. station in Alaska, informs me that he has seen a number of cases of plica among the natives of that region. A typical case of this curious deformity was lately presented at the author's clinic.

Under the title *NEUROPATHIC PLICA*, Le Page² describes a case in which tangled "lumps" and "festoons" of hairs, flat, curled, looped, and intertwined, appeared on one side of the head of a girl seventeen years old, who had previously suffered from neuralgic pains in the site of the growth.

Etiology.—The causes of hypertrichosis are practically unknown. It is clear that whatever determines the blood in excess to any one region of the body, may be indirectly the cause of hypertrophy of the hair, a fact demonstrated in the patients who, after applying sinapisms or liniments for years to the skin over the seat of a rebel-

¹ See the author's case of *nævus lipomatodes* in a child, the pilary growth being at that age undeveloped. *Journal of Cutan. and Ven. Diseases*, July, 1885.

² *British Medical Journal*, January 26, 1884, p. 160.

lions neuralgia, exhibit an abundant growth of hair, often several inches in length, over a scapula or a buttock. In women, whose sex renders the anomaly most deforming and distressing, it is chiefly noted as has been observed, in precocious, perverted, or arrested activity of the sexual function. The neurotic conditions accompanying certain varieties of hirsuties may be inappreciable; or evidently due to traumatism; or exhibited in paralyses, muscular atrophy, etc.

Treatment.—To Hardaway, of St. Louis, Americans are indebted for the popularization of the method of removing superfluous hairs by electrolysis, first devised by Michel, of his city. After him most American dermatologists have with success removed extensive pilary growths without subsequent reproduction of the hairs. A fine needle is introduced into the hair-follicle and pushed well down to the papilla at its base. This instrument is connected with the negative pole of a galvanic battery containing six or more elements, the positive pole of which is in connection with a sponge electrode held in the patient's hand; the latter being thus enabled to make or break the circuit at will. When the current is passed, a few minute bubbles of gas escape from the orifice of the follicle, and, when the hair-papilla is destroyed, the hair itself is readily extracted. The dexterity acquired by practice is requisite for the proper performance of the operation, with a view particularly to the insertion of the needle at the proper angle into the follicle. Few patients complain of pain. The number of hairs removed at a sitting varies with the sensitiveness of the patient's skin. The resulting scar is either quite imperceptible or far less disfiguring than the hirsuties, suggesting the appearance of the male beard after shaving. Transitory maculæ, papules, pustules, and wheals occur at the site of puncture. Care should be taken not to insert the needle too deeply in the particularly vascular regions of the face, as an aneurismal tumor might be produced as a consequence.

Every detail of this exceedingly simple operation has now been carefully studied by American operators, and the results, as confirmed by the author's experience, may be given as follows:

1. As to the battery, any good galvanic battery may be employed. The author uses habitually the forty-cell stationary battery made by the McIntosh Galvanic and Faradic Company, whose switch-board is so arranged that any number of any selected cells may be brought into the circuit. The number of cells employed should be different for different individuals, different parts of the face, and on different days with the same individual—*e.g.*, a smaller number is required when a patient previously operated upon returns after a somewhat long period of rest. Two to four cells only may be tolerated over the tip of the nose or upper lip near the septum nasi. Twelve to twenty may be well borne, after some experimenting, on an insensitive chin.

2. The best needle is a carefully selected, exceedingly fine jeweller's broach, its shaft and point annealed by rapid passage through the flame of an alcohol lamp. It is often useful to have the point also

well rounded on an emery-wheel. The irido-platinum needles are useful, but inferior for general work to the well annealed, carefully selected broach.

3. The needle-holder should be simply a convenient insulated handle, sufficiently long to protect all the points of the operator's right hand from the current. The author employs Prof. White's long handle. Duhring's¹ is of the shape of a thin lead pencil or pen-holder, and is about four inches in length. The handle or stem is of hard rubber, through which passes a metallic rod, acting as a conductor for the transmission of the current. The needle is inserted into the needle-holder proper, which is slotted, the needle being clamped immovably by means of a screw-nut. On the other end of the stem there is an insulated inserting-pin attached to the cord leading to the battery. The instrument is of proper weight, convenient to handle, and altogether well adapted for the operation.

4. As to further details of the operation it is well (a) to make the connection only after the needle is *in situ*; (b) to introduce the latter with a gentle manipulation acquired only by skill—it is well characterized by Hardaway as a "catheterization" of the hair-follicle—observing a certain degree of parallelism with the hair-shaft as the needle enters; (c) to operate leisurely, making sure that the current is not broken by the separation of the hands of the patient, before the hair is completely free in the follicle. This last can be ascertained by gentle traction on the shaft in from ten to twenty seconds after the insertion of the needle; (d) to operate in succession upon contiguous hairs when practicable, not selecting one here and one there, the latter course being productive of greater pain; (e) never to use the positive pole in connection with the needle, an error which results in the production of unsightly pigmented blemishes on the surface of the skin.

The previous employment of preparations of cocaine both hypodermatically and by inunction—*e. g.*, the oleate of cocaine—in order to relieve or diminish the pain of the operation, may be followed by exceedingly unpleasant consequences. The author has seen a dermatitis thus induced present for months.

Dr. Prince, of Boston,² lays stress upon the accurate regulation of the current by the aid of the absolute galvanometer, which the author has found in his practice useful but not essential. Dr. Fox,³ of New York, reports a gradual decrease in the number of hairs returning after operation, proportioned to the improvement in the instruments and skill of the operator. There can be no question that the percentage of such returns varies with these conditions.

All patients affected with hirsuties are not to be advised the operation. The author has declined to operate in many cases which were not deemed to belong to the class in which the best results of the

¹ Amer. Journ. of the Med. Sci., July, 1881.

² The exact measurement of the electric current, and other practical points in the destruction of hair by electrolysis.

³ The use of electricity in the removal of superfluous hair, etc. Detroit, 1886.

operation may be expected. Young and vigorous women, usually unmarried, may point out hairs to be removed which are merely fully developed filaments of a thick downy growth, all of whose individuals are rapidly pushing to equal maturity. Here the operation itself, by inducing hyperæmia of the skin, may simply hasten the hypertrichosis actually in progress, and thus aggravate the disorder. In most cases when an operation is undertaken, both parties should fully understand the possible issue. It may also be a question whether it lies within the legitimate sphere of the physician to remove superfluous hairs from the habitually covered breast and arms of women.

Hairy nævi are best removed by complete excision.

Depilatories for the removal of superfluous hairs operate by the destruction of the filament without obliteration of the papilla. The consequence is that the hairs are reproduced in the course of about a fortnight. Most of the compounds used for this purpose contain either the sulphate of calcium, sulphate of arsenic, or sulphide of barium, made into a species of paste with hot water. This is applied over the surface with a spatula, and permitted to remain till it dries, a period usually requiring ten minutes. It is then rapidly removed by scraping with the spatula, and the surface thoroughly cleansed with warm water, after which it is anointed with cold cream, or other similar unguent.

Of these depilatories Duhring recommends the following:

R. Barii sulphis.	℥ij;	8	M.
Pulv. oxid. zinc. }	āā ℥ij;	12	
Pulv. amyl. }			

The following are formulæ devised by French authors.

R. Sodii sulphat.	℥ij;	12	M.
Calcis }	āā ℥x;	40	
Amyli pulv. }			

To be finely triturated, and when used, to be made into a thin paste with water. (Boudet.)

R. Calcis	℥j;	4	M.
Sodii carbon.	℥jss;	6	
Cerat. adipis	℥j;	32	

To be applied as a depilatory in the manner of a paste.

All of these require caution in their use, and should never be intrusted to unprofessional hands.

Shaving may be practised upon the hirsute face of women, and, with a similar end in view, epilation also; the latter, particularly in cases of hypertrophy of the hair, limited in extent. Partial success has attended the thrusting into the follicles of needles, previously dipped in various caustic solutions, or heated in various degrees, but these methods are all far inferior to electrolytic destruction of the hair-papilla.

3. Of Connective Tissue.

Sclerema Neonatorum.

Gr. σκληρός, hard; νέος, lately; γέννω, to bring forth.

Sclerema Neonatorum is a disease of early infancy, induced by changes in the capillary circulation, accompanied by a progressive fall of temperature, and characterized by blanching, œdema, and even mummification of the skin.

Symptoms.—The disease occurs, as a rule, in from three to six days after birth, and is characterized by a progressive cooling of the surface of the body, with an increasing and extending œdema, first most noticeable in the lower extremities. The skin is blanched, marbled, mottled, or more rarely of a yellowish, reddish, or violaceous hue, pits upon pressure, and later is indurated, firm, tense, and shining. The condition becomes more or less rapidly noticeable over the other parts of the body, the face, upper extremities, and trunk. As a consequence, motion is impeded, the features are stiffened, suction of the nipple is rendered difficult or impossible, and the infant reclines helpless, motionless, rigid, cold to the touch, and displaying the signs of a waning vitality merely by its moans and superficial respiration. Death usually occurs within a brief time.

The respiratory and circulatory systems are in such cases always at fault. The disorder is common after capillary bronchitis, the pneumonia of infants, and the gastro-intestinal disorders which prevail in premature, imperfectly nourished, and neglected infants of a tender age.

Etiology.—The causes of the disease, whose cutaneous manifestations seem to be largely symptomatic, are to be sought in every systemic disorder of early infancy which is accompanied by retardation of the respiration and circulation. For several years the author had the opportunity of studying the changes which precede a fatal issue in a large proportion of the abandoned and diseased foundlings cared for in the infirmary of the Chicago Home for the Friendless, and in several were distinguished unmistakable symptoms of sclerema neonatorum. Three of these waifs had been, significantly, abandoned at the door of the institution in very cold weather, and had there remained for several hours exposed and unnoticed. In none was it necessary to seek for causes any more profound than those which the history of each case suggested.

Authors have, however, regarded the disease as produced by atelectasis pulmonum, cardiac disorders, and unknown constitutional conditions.

Pathology.—Post-mortem, there is discovered no hypertrophy of the cutaneous elements. The tissues are simply distended with yellowish-white serum—in other words, are œdematous. This fluid, often

containing fat globules, flows forth after incision of the parts, more or less stained by the coloring matters of the blood, which was during life in a state of partial stasis. The stearine-like deposit found in the panniculus adiposus, is mere coagulated lymph, whose movement has been arrested and whose temperature has been lowered simultaneously with that of the blood. The subcutaneous tissue is usually so infiltrated that it is readily separable from the fasciæ and aponeuroses beneath. The brain, lungs, kidneys, and serous membranes are often found coagulated and infiltrated with fluid.

Diagnosis.—The disease is readily recognized by its characteristic features exhibited in very early infancy, and in subjects suffering from any cause which strongly depresses the respiratory and circulatory activity. It is to be distinguished from sclerema adultorum, in which there is a hide-bound condition of the integument of very slow progress and rarely generalized. The latter disease is due to a true hypertrophy of the cutaneous elements.

Treatment.—The treatment should be exclusively directed to the restoration of warmth, the stimulation of the respiratory and circulatory centres, and the proper alimentation of the little patient. Massage and cutaneous frictions, with artificial heat applied externally, are serviceable. The prognosis is grave. Infants are said to have been saved after exhibiting these symptoms. The author has seen none such recover. In the discussion, however, of a case presented by Dr. Robinson to the New York Dermatological Society in 1883, several cases of recovery were reported.

Scleroderma.

Gr. σκληρός, hard; δερμα, the skin.

Scleroderma is a chronic affection, characterized by a circumscribed or relatively diffuse induration, rigidity, fixation, and subsequent atrophy of the skin, the affected parts being yellowish-white, waxy, or pigmented in color, and either elevated or depressed, the disease-process enduring for a series of years, and, in certain cases, terminating fatally after the induction of marasmus.

The disease, also termed SCLERIASIS and SCLEREMA, is manifested either as a partial or general change in the structure of the skin. The former, much more commonly encountered, is termed by French authors, *scélérème en placards*.

There can be little question to-day that morphœa and scleroderma are different names for one and the same disease, though the two have been separately considered by many authors. In the following pages, adhering to the nomenclature of the American Dermatological Association, the conditions indicated by each name are for the present separately described, a temporary provision looking to more exact knowledge of the entire subject. Under the title, Morphœa, will be, therefore, found a description of the localized forms of scleroderma, to which that name has long been applied.

Symptoms.—In both the partial and generalized forms, the disease is first manifested in irregularly defined roundish or ovalish, coin or palm-sized patches, in elevated or depressed, yellowish-white or waxy, ribbon-like bands, or in a more extensive and uniform involvement of the skin, usually that of some part of the upper segment of the body. The affected areas in both of the forms named may be elevated slightly above the level of the adjacent normal integument, or to an equal extent depressed below it, or both, the depressions being irregularly distributed among the elevations, or, especially in the ribbon-like form, bordered on either side by dense ridges. In all fully developed cases, the most prominent feature is the sclerosis, the skin being shining, indurated, brawny, tense, pigmented, and immovable upon, because adherent to, its underlying structures, as the muscles, aponeuroses, and periosteum.

For this reason, there is at times interference with the movements of the trunk in respiration, as also of the lips and other parts of the face in the expression of the emotions, and of the fingers in the grasp of the hand. The disease, in short, produces the condition often described as "hide-bound." The skin of the affected parts is usually yellowish-white, dirty yellowish, waxy, or like alabaster in color; is often slightly desquamating, and may be pigmented in various shades from yellow to brown and bronze. There is usually no alteration in the subjective sensations, temperature, glandular secretion, nor, in the early stages of the disease, in the general health of the patient. The malady begins insidiously, but may, however, be rapid in its development, and accompanied by pyrexia or rheumatoid symptoms. In its subsequent progress, it always pursues a chronic course.

There is no strict line of demarcation between the sclerosed and unaffected portions of the skin. The temperature of the affected part may be at times slightly subnormal.

After the complete evolution of the disease, when the sclerosed patch has attained a maximum of induration and thickening, the disease may disappear by resolution, or marked atrophy result. This atrophic process may involve both the skin and its underlying structures. A dead-white, thinned, pinkish, slightly pigmented, or dirty-yellowish membrane may then be seen tightly stretched over a joint or a projecting osseous surface.

The course, therefore, of the disease may be either toward definite resolution, persistent cutaneous atrophy, or the final induction of a fatal marasmus. But little is known of the concluding stage of the affection, patients, before arriving at that term, usually drifting from the observation of practitioners. Nearly twenty fatal cases are, however, on record. The skin may be entirely restored to its normal condition, but often such restoration is succeeded by a return of the disease in the part originally affected, and by the involvement of new areas.

The sites usually involved are: the head, trunk, and upper extremities, including the mamma of women. It is occasionally of

symmetrical development. When occurring upon the face, an exceedingly characteristic symptom is the resulting immobility of the features, head, thorax, digits, and even the limbs.

Its lesions are accompanied at times by other cutaneous disorders, such as eczema, erysipelas, melanoderma, canities, anidrosis, morphœa, zoster, and acne.

Exaggerated forms of the disease have been noted by several authors, where, to a varying extent, the surface of the lateral half of the face has been involved, the resulting condition being described as *HEMIATROPHIA FACIALIS*. Here not only the subcutaneous tissue, but the aponeuroses, periosteum, and bones may participate in the atrophy, a fact well illustrated in the case of Robinson's patient,¹ whom the author had the opportunity of examining. In this instance there was also a distinct sclerodermatous lesion on the face of one thigh.

Scleroderma is exceedingly rare; and the preceding description is based upon the notes of the few cases which have fallen under the author's observation. In one male patient, the surface of the entire chest was symmetrically involved to the extent of inducing marked dyspnoea, and the general condition was that of decided asthenia. His skin was tightly bound in undulating ridges to the ribs beneath, and colored in a dirty-yellowish shade. The other patients were much less seriously affected; one had symmetrical scleroderma of a part of the skin of the thorax in irregular patches; another, a band-like deep yellow depression between dense ridges which fastened a part of the forehead firmly to the frontal bone; the fourth, a limited whitish patch at the back of the neck; and the fifth, a diffuse scleroderma of the cutaneous envelope of the left mamma, the patient dying in a neighboring State one year after my examination of her person, of what her physician pronounced to be "sarcoma" of the lung.

Finlayson² has observed in one case symmetrical gangrene of the extremities, a complication related without doubt to the "symmetrical asphyxia of the extremities" described by a number of English authors. The so-called "Glossy Fingers" and the "Sclerodactylia" of symmetrical distribution may belong to the same category.

In many of the asymmetrical forms of the disease, and in others also, the sclerosed patches occur in the areas definitely supplied by certain nerves, or in the lines of nerve trunks. The lilac-tinted border, described more fully in connection with morphœa may disappear as the disease progresses. In exceedingly advanced stages the pigmentation may be deep and extensive. The complications of such stages are naturally associated with circulation disturbances; and may be erysipelatous, gangrenous, or ulcerative. Amyloid degeneration of the viscera may also complicate any case.

Etiology.—The causes of the disease are obscure. It is observed in about two-thirds of all cases in the female sex, a fact which certainly points to some other cause than rheumatism as effective in

¹ Amer. Journ. of the Medical Sciences, Oct. 1878.

² Med. Chronicle, Jan 1886

its production, since men are more exposed than women to changes in atmospheric temperature and humidity, which agents are generally admitted to have an etiological importance in rheumatism. The disease occurs at all ages, chiefly, however, in adults. Cruse observed one case in a child two years old.

The etiological importance of the nervous system is, in the explanation of many cases, too obvious to require demonstration. This is much more distinct in the localized manifestations of the disorder where a region supplied by a single nerve or traversed by a nervous trunk is solely involved. Harley, Schwimmer, and others have recognized cardiac and gastric disturbances; Westphal and Eulenberg, central and peripheral changes in the nervous system; Heller demonstrated in one case a closure of the thoracic duct. Bancroft¹ repeatedly recognized filariæ in large numbers in the blood of a young girl in Australia affected with a characteristic scleroderma.

The disease is regarded to-day by the greater number of observers as a trophoneurosis.

Pathology.—The confusion which has existed in relation to the question of the identity of scleroderma and morphœa is due to various causes. By several authors similar symptoms are described under each of the two names: and the symptoms described as peculiar to each are occasionally seen either simultaneously or successively in the same individual.

Microscopical examination of the tissues involved in the disease has proved unsatisfactory. The connective tissue of the skin has been found, according to Kaposi, condensed and thickened; its elastic fibres multiplied at the expense of the panniculus adiposus; its muscular tissue hypertrophied; the pigment in the rete and corium increased; the sweat glands dilated; the lumen of the blood-vessels diminished, and their walls ensheathed in accumulations of what he terms "lymphatic cells."

Schwimmer and Bates found vascular changes including a narrowing of the vessels, thickening of the tunica media and intima. In the atrophic sequelæ of the disease the new elements disappear.

Diagnosis.—A differential diagnosis between scleroderma and morphœa involves, as has been already shown, chiefly a distinction between the partial and general manifestations of the disease.

Scleroderma is occasionally symmetrical, usually insidiously developed, void of subjective sensations, and indeterminate in outline. Morphœa is usually asymmetrical, often accompanied by pain or tingling, and exhibits a particularly well-defined contour. Scleroderma may affect large areas of the integument which are at some time densely rigid and firm, and may not exhibit to the eye a structural change. Morphœa is of much less extensive development, produces a soft, somewhat elastic or "cushiony" feel to the touch, and alters the skin so that the eye can take cognizance of the change. The former commences as a cutaneous sclerosis; the latter as a patch of altered color, the change of hue being due to a greater or less

¹ Lancet, Feb. 28, 1886, p. 380.

degree of vascularity. Lastly, in scleroderma there is no telangiectasis, nor punctate atrophy.

Treatment.—The treatment of scleroderma, though empirical, should be persistently enforced in the hope of improvement. Locally, baths (cold, hot, sea, vapor, Russian), massage, frictions with fat and oils, and possibly the hypodermatic injection of pilocarpine (Besnier, Doyon) may be advantageously tried. The inunction of mercurial and iodized unguents has proved futile. Internally, quinine, iron, arsenic, cod-liver oil, and the usual hygienic and tonic regimen, are in different cases severally indicated.

In some cases the galvanic current has been employed with marked benefit, applied locally to the patches of disease, and in the direction of the trunks of nervous supply, and over the nervous centres. Rasmussen applies locally an ointment of the black oxide of copper, two grains (0.133) to the ounce (32.).

Prognosis.—The outlook for the patient affected with extensive scleroderma, especially of the trunk, is decidedly unfavorable. Much more limited expressions of the disease may be regarded as less grave. Recovery in cases is said to have been perfect. Atrophy once established, is final. Contracture of mouth, fingers, or costal region may prove serious. Patients yielding to marasmus are naturally those to whom little can be promised. Even after slight manifestations of the disease, the future may be portentous.

Morphœa.

Gr. *μορφῆ*, by metathesis, form.

Morphœa is a cutaneous disease characterized by the occurrence of one or several discrete, well defined, firm, and smooth points, patches, lines, or bands, often slightly elevated or depressed, and surrounded by a delicate violaceous or lilac-tinted halo, whose involution may be followed by macular, punctate, or striate atrophy of the skin.

Symptoms.—This disease, once known under the misleading title of "Addison's Keloid," is to-day best regarded as a local manifestation of scleroderma. The following is a brief description of the most typical form of the disease observed by the author:

The patient was a vigorous, well-nourished girl, sixteen years old, with a patch upon the outer face of the left thigh, as large as a breakfast plate and almost as perfectly circular. It was slightly elevated in its centre above the adjacent level, and thence declined to the periphery by a gentle curve quite perceptible when viewed from the side. It was firm but not indurated, feeling to the finger like a densely padded cushion set in the skin. With some difficulty it could be gathered up between the fingers. Sensibility was slightly impaired over its surface. Its outline was so distinct that its limits could have been traced by a pen. The surface was exceedingly smooth, and colored in a shade between alabaster and yellowish wax. Regularly dispersed over the surface of this circular cushion, were

discrete, slightly pigmented, atrophic puncta, separated from each other by an inch or less of the shining substance constituting the patch. About it was a delicate, elegant, and very regularly displayed halo of a violaceous tint, which on close inspection could be seen to be produced by a plexus of minute capillaries.

Of the few cases of this rare disease which the author has had the fortune to see, no one was comparable with that described above, as respects the size of the patch, and the classical type of the features. In another case, observed lately in private practice, a female child exhibited a small hen's egg-sized patch on the left temple, the involved part projecting to a marked extent above the level of the surrounding skin. The same violaceous halo surrounded the part, made up, as was evident on close examination, of a delicate vascular plexus.

Other forms in which the disease is manifested are one or more coin- to palm-sized patches approximately circular, either at the general level of the integument or slightly depressed below it, in which the tissues are either natural, or unusually firm, tense, and suggestive of a tightly stuffed cushion. The surface may be rosy pink, whitish, yellowish, lardaceous, purplish, mottled, or pigmented. It may resemble marble, alabaster, wax, bacon, or a piece of tanned leather. Occasionally there is superficial desquamation. Often minute bloodvessels ramify over its surface, or in the areola, beyond which also the skin may be pigmented in various shades. The centre is often partly anæsthetic. After existing for months and even years, these lesions may undergo involution, leaving an unaltered integument where once they existed, or, more commonly, a contracting cicatriform atrophy of the skin and often also of the subcutaneous tissues, the resulting scar becoming agglutinated to the structures lying beneath it.

The lesions may often also be first observed as punctate or striate atrophic depressions. An exaggerated form of the latter is the more or less broad, grooved streak, or furrow, in the sunken floor of which is a glazed, white, firmly attached, and insensitve epidermis, bounded on either side by hyperæmic, pigmented, or otherwise altered, smooth edges or ridges. Whether, however, in the form of patches, puncta, striæ, furrows, or broad grooves, these changes must in many cases be sequelæ of the insidious deposition of lardaceous material to a corresponding extent, whose resorption has been unnoticed. As in the case of striæ et maculæ atrophicæ, many of these lesions are mingled with, or surrounded by, variously colored, pigmented, hyperæmic or telangiectasic patches, streaks, lines, or mere shadows. Often a delicate, yellowish, or violaceous streak can be distinguished in the immediate proximity of these curious lesions, and the most careful scrutiny will fail to define either its outline or character.

The disease occurs asymmetrically, and often unilaterally, upon the face, back of the neck, surface of the trunk, including the breast of women, the belly, the arms, and the thighs. It is said, also, at times to select the areas supplied by certain nerves, a feature by no means distinctive of the disease. Tilbury Fox, for example, writes that

"when morphœa occurs on the forehead, it takes the course of the supraorbital nerve;" but I have certainly seen one perfect frontal groove, with pigmented, yellowish edges, terminating fully an inch from the supraorbital notch.

Etiology.—The causes of the disease are unknown. It rarely occurs in men, a large proportion of all patients being women. I have, however, seen an oval patch two inches in length upon the back of the neck of a young man. All my patients, one child only excepted, were individuals in early adult life, though it is said to occur at all ages. The subjects of the disease are both vigorous and weakly.

Pathology.—The studies thus far made of the microscopical anatomy of the disease have neither sufficed to demonstrate its identity as distinguished from scleroderma, nor to explain satisfactorily the polymorphism of the affection. Duhring, in one case, established shrinkage of the upper and condensation of the lower layers of the corium; while Crocker,¹ beside noting the usual phenomena of multiplication of the elements of the derma and secondary changes in the rete and skin glands, thought there was also a fibrous metamorphosis of the protoplasm, lending color thus to the view of Fox, that the disease is essentially a fibroid degeneration of the skin.

The neurotic explanation of the disease, suggested by Hutchinson and others, may be said to have generally commended itself to late observers. Morphœa, in fact, is a localized scleroderma, and its position will probably be one day fully established among the trophoneuroses of the skin.

Diagnosis.—For the distinctive differences between morphœa and scleroderma, when such are recognizable, the reader is referred to the details presented in connection with the diagnosis of the last-named disease. From the patches of vitiligo those of morphœa are readily distinguished by the entire absence of all structural cutaneous changes in the former, and their characteristic milky-white color, the hairs of the part being also blanched. Both the pigmented macules and atrophic patches of lepra are remarkable for their anæsthetic condition, and their coincidence with, or sequence from, other readily recognized symptoms of the disease, such as tubercles, bullæ, ulcers, and involvement of the hairs, nails, eyes, and other organs.

Treatment.—In many of the milder cases of morphœa, especially those existing upon portions of the surface concealed by the clothing, there is no indication for treatment. The patient's general health is unimpaired, and the local disorder unproductive of either present discomfort or a menace for the future. When the disorder is facial, and atrophy has already occurred, the resulting disfigurement may be regarded as remediless. For the earlier stages of the disease upon the face, and for those lesions in other situations which, from their size, number, or progress, are portentous, general and local treatment may be required. The former includes the use of iron, quinine, arsenic, cod-liver oil, strychnia, and phosphorus, with the usual

¹ Lancet, November 22, 1870.

roborant regimen and diet. The latter involves the application of the various simple stimulants, frictions with oil, spirits, and soaps, singly or in combination; lotions with the mercuric bichloride, massage, and the employment of the galvanic current. In pregnant women treatment should be deferred till after delivery, when involution may be more speedily obtained. Young girls, chlorotic, anæmic, and suffering from menstrual derangements, should be taken from the school-desk and the piano-stool, and sent to the riding-gallery, the gymnasium, or the dairy-farm, where they can swallow a goblet full of pure, fresh milk after each meal.

Prognosis.—The disease may terminate by spontaneous and perfect restoration of the part. Adherent atrophic striæ or patches are remediless. The progress of the disease is exceedingly indolent, and may continue for a lifetime. Occasionally grave sequelæ may be anticipated.

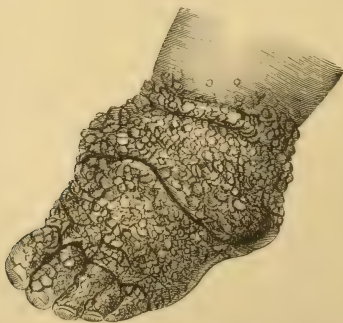
Elephantiasis.

Gr. *ἐλέφας*, elephant.

Elephantiasis is a chronic disease of the cutaneous and subcutaneous tissues, usually limited to certain regions of the body, preceded by the occurrence of some inflammatory process in the blood- and lymphatic vessels of the affected part, and resulting in an enormous increase in its volume, with hypertrophy of the structures of which it is composed.

Symptoms.—This disease, long known as Elephantiasis Arabum, Pachydermia, Bucnemia Tropica, and Elephant Leg, or Barbadoes Leg, is encountered more frequently in and near the tropics, but sporadic cases occur in all countries. Perfectly typical instances of the malady have been noted in almost every part of the United States.

FIG. 49.



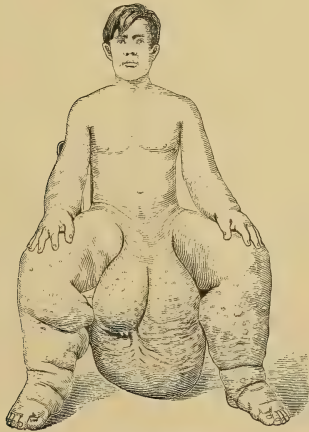
Elephantiasis of the foot and leg.

Its most frequent seat is the lower extremity of one side, where it involves the foot and leg, though the thigh of the same limb may

also enlarge. The penis and scrotum of the male, the labia and clitoris of the female, the upper extremities, the face, and portions of the trunk may likewise become involved.

The disease is insidious in its approach, and remarkably chronic in its career. Usually, localized inflammations precede, as an erysipelas or a dermatitis, with or without some involvement of the lymphatic vessels and glands. At the same time there is a condition of general fever. To this succeeds a defervescence, with abatement of the local inflammation; its sequelæ becoming manifested in a more or less persistent œdema of the part lately inflamed. After intervals of days, weeks, or months, the pyrexia recurs with still greater involvement of the swollen tissues which, with each access of fever, increase in volume and gain in density. When the elephantiasic condition is fully developed, the skin is found to be tense, glossy, and blanched or discolored in various shades. Pressure upon the œdematous part is followed by pitting, but the tissue beneath is felt to be brawny and indurated. The parts beneath the skin are perceptibly increased in volume, especially the subcutaneous tissue; and the circumference of a limb thus diseased may be several times larger than that of its fellow. A lymphangitis is usually declared by painful, cordlike, linear indurations of the part, associated with adenopathy of the

FIG. 50.



Elephantiasis scroti.

nearest ganglia. In older cases, the skin loses its glabrous aspect, and exhibits eczematous, verrucous, papillomatous, seborrhœic, and even ichthyotic changes. Pigmentation, even to a blackish tint, may ensue; scaling, fissuring, and furrowing are common; and the accumulation of altered sweat and sebum in these depressions is the

source of an offensive stench. During the course of the disease almost all of the elementary lesions of the skin may be displayed by the skin, maculae, vesicles, papules, tubercles, pustules, blebs, ulcers, crusts, scales, excoriations, and fissures. Warty growths form as large as those seen in ichthyosis hystrix, and in some cases reddish-colored tumors spring from the hypertrophied integument.

When fully developed in the lower extremity, the unwieldy limb with the foot, ankle, and leg massed into one huge, cumbrous cylinder, bears a striking resemblance to that of the elephant, from which circumstance the malady first received its name among the Arabs. Locomotion is then greatly impeded, or rendered impossible. No less striking is the similar deformity induced in the female labia or male scrotum, the latter at times hanging far below the knees. In its rugous folds the penis disappears, and the urine is passed along a gutter formed of skin transformed into quasi-mucous membrane. As a consequence of the fissures and excoriations which form, the lymphatic channels are finally opened, and a true lymphorrhœa results. After similar processes the ear may become largely pendulous by the side of the neck.

Subjectively, the disease may be regarded as productive of less discomfort than would be suggested by its formidable features. Pain is occasionally experienced, and, during the exacerbations accompanied by pyrexia, there is corresponding malaise. The chief subjective sensations are those induced by the weight and consequent tension, inseparable from the enormous masses of hypertrophied tissue.

Etiology.—The causes of elephantiasis are exceedingly obscure. Predisposition of races or individuals, heredity, climatic influences, malaria, fatiguing labor with the feet and legs immersed in water, and filth in connection with "misery," have all been cited as favoring conditions. To these should be added the local disorders especially common in the lower extremities, which have in cases proved to be the points of departure of the elephantiasic hypertrophy, such as obstruction to the blood or lymphatic currents by pressure of tumors, pregnancy, or neoplasms; ulcers, cicatrices, and the presence in the blood of the *filaria sanguinis hominis*.

Lewis and others have demonstrated the presence of embryos and filaria, adhering to the walls of both lymphatic and bloodvessels in elephantiasis of the tropics; but the occurrence of the malady where such parasites do not exist is to be explained on other grounds. The disease is especially prevalent in the East and West Indies, Egypt, Arabia, Abyssinia, Africa, Malabar, Barbadoes, Brazil, Mexico, and parts of China.

Pathology.—Even macroscopically, the elephantiasic mass is seen to be built up of hypertrophic elements representing all the tissues of which the part is composed. The knife with difficulty divides the homogeneous, whitish, and lardaceous mass, from which on pressure exudes a fluid of similar color. The subcutaneous connective tissue is found relatively much more enlarged and sclerosed than the epidermis and derma; though when the section is made through

the rugous and warty skin described above, all the elements of the papillary layer, rete, and stratum corneum are seen to participate in the changes described in connection with the pathology of verruca. Here and there are loculi filled with a fluid lymph. The sheaths of the bloodvessels, lymphatics, and nerves, the bones, muscles, and aponeuroses are also thickened, solidified, and occasionally agglutinated, so as to be almost indistinguishable in the mass of uniformly sclerosed tissue. The pigmentation of the derma is marked; the nuclei of the connective-tissue cells are multiplied; and the cutaneous glands intact, hypertrophied in their epithelial linings and investments, or, at a later stage, atrophied.

It is evident that in many cases, as Virchow has pointed out, the earliest of the changes to be noted occur in the lymphatic glands and vessels, the whitish and yellowish lymphatic fluid which then accumulates in the tissue, resulting from obstruction of some of the lymph channels. In some of the remarkable cases on record the lymphatic obstruction is the prominent feature of the disease; and the elephantiasic enlargement subordinate in gravity to the former condition. Such are, for example, the noteworthy instances in which the lymph distends multiple cutaneous vesicles, after rupture of one or more of which that fluid streams away to a dangerous extent. For a fuller description of this interesting class of cases, the reader is referred to Busey's careful monographs on Occlusion and Dilatation of the Lymph Channels.

Diagnosis.—The striking deformity, which characterizes elephantiasis, will always suffice for its recognition. In the earliest stages of the disease, when merely an erysipelatous or eczematous condition of the skin can be determined, it would be difficult, if not impossible, to decide as to the future of the disorder, especially in a locality where only sporadic cases occur. A symmetrical hypertrophy of both legs and both feet developing in this country, even though described as "elephantiasis," should be most carefully studied before a diagnosis is made of the particular disease here considered. The same might even be said of elephantiasis of but one inferior extremity. The author was once requested to examine a patient with extensive deforming induration and enlargement of the right leg and foot, accompanied by pigmentation and a well-marked warty condition of the skin, who had been pronounced the victim of idiopathic elephantiasis Arabum. It was discovered that the patient had had a fracture of the upper third of both bones of the same leg during the previous year, and had since constantly worn a tight bandage, encircling the limb at the seat of the injury. The deformity rapidly disappeared under the application of a roller bandage extending from the toes upward.

A peculiar and rare, though characteristic, deformity of the labia majora of women—most commonly the labium majus of one side—results from a tertiary, syphilitic, gummatous infiltration which must be distinguished from elephantiasis. In such cases the history of the disease and the relative inferiority as to bulk of the affected organ,

points to the nature of the disease. The syphilitic labium rarely exceeds the size of a large fist.

Treatment.—In the early stages of elephantiasis, the febrile condition of the patient and the localized cutaneous inflammations, are to be treated by the measures appropriate for the relief of these conditions. Quinine, especially in malarial districts, is of the highest importance. When the elephantiasic development is established, if the genitals are involved, the knife of the surgeon offers the best prospects. The result of such interference, both in the genitalia and extremities, has been in many cases brilliant indeed, though the mortality of such severe operations is necessarily great. When the lower extremity is involved, it should be maintained in a horizontal position, its ulcers if possible healed, its excrescences removed, its circumscribed inflammations resolved, and then elastic compression be carefully and skilfully maintained by means of the rubber bandage. The toes are first separately enveloped; then the foot and ankle; and lastly the leg. The results are sometimes highly satisfactory.

Ligation and digital compression of the main artery supplying the elephantiasic leg, have been occasionally followed by transient improvement. Instrumental compression has at times resulted in severe ulceration, and a reawakening of the erysipelatous affection. Multiple punctures and incisions, made with a view to giving exit to the fluids contained in the mass, have been attended by no greater success. The main obstacle in all these surgical procedures, is the lymphangitis which so frequently complicates the situation. None of them promises so well as nerve stretching, which, in a few isolated cases, has been followed by noteworthy results. Excision also of a portion of the sciatic nerve has been followed by satisfactory changes. The use of the galvanic current has, when long continued, accomplished resolution of engorged masses of tissue. Elastic compression in the horizontal position for all cases not warranting nerve stretching, may be regarded as the wisest course when the extremity is involved. For the local treatment of the pachydermia proper, green soap, mercurial ointment, and bathing in hot or cold lotions, may be advantageously employed. For patients whose disease is acquired in countries where the deformity is prevalent, a change of climate is of the highest importance; and, having in view the social surroundings and habits of most victims of the disease, it is scarcely necessary to call attention to the need of a proper hygiene, diet, and tonic regimen.

Prognosis.—The future of a patient affected with the disease may be regarded as most favorable when the latter exhibits an early tendency to respond favorably to appropriate treatment, and when circumstances permit of a resort to the best therapeutic measures which can be adopted, such as change of residence, persistent and careful dressing of the affected part, and the removal of any exciting cause of the disease, such as a neoplasm, indurated cicatrix, etc. In the severer cases, a fatal result may be precipitated; but usually life is prolonged, burdened by the inconvenience of the enormous

elephantiasic mass in comparison with which the rest of the body often seems to serve as a mere appendage.

LYMPH SCROTUM, Varix Lymphaticus, or Nævoid Elephantiasis, fully described by Wong, Carter, Fayrer, Manson, and other East Indian observers, is that condition in which the inguinal and femoral glands become large and soft, and the scrotum covered with vesicles and distended with dilated lymphatic vessels all filled with coagulable lymph. As in elephantiasis of other organs, there may be preceding fever, chills, erysipelas, and other localized inflammations. The disease is produced solely by the *filaria sanguinis hominis*, and may be associated often with chyluria on the one hand, and elephantiasis of other organs on the other.

Rosacea.

Lat. *rosa*, rose.

Rosacea is a chronic cutaneous disorder, chiefly of the face, characterized by irregularly disposed, rosy or reddish maculations often produced by telangiectasis of the skin capillaries, or forming split-pea sized and larger hypertrophic nodules most commonly seated upon or about the nose.

The condition of telangiectasis described under this title, is almost identical as regards its clinical features with acne rosacea (*Gutta Rosea*, Copper-nose), to which the reader is referred. In what follows, it is attempted to portray the affections of this class which may be properly described as hypertrophic in character; relegating the acneiform cases to the chapter devoted to Acne Rosacea.

[A.] Erythematosa.

Symptoms.—The eruption is usually displayed in middle life or later, and chiefly upon the face of both sexes. In these, the nose (tip, alæ, root), brow (especially near the root of the nose), chin, cheeks, temples, or lips, may be the seat of reddish or rosy blotches. The effect is a marked unsightliness for which chiefly or only the advice of the physician is sought. These maculations are usually unproductive of subjective sensations, or of objective feeling of heat. They may be so numerous as to implicate all the regions named above to a great degree, or be limited to one or two adjacent regions, or, lastly, be spread very profusely over the entire face in minute blemishes not more developed at one point than another.

The very greatest irregularity may be noted as to their contour, the spots being pin-point to nail-sized, roundish, radiating, stellate, linear, tortuous, or in any fantastic outline. The colors vary from a delicate rosy pink to a deep purplish crimson. Viewed with care all are seen to be produced by a double process of dilatation, and new formation of the skin capillaries.

This condition is subject to marked aggravation, or at least tran-

sient change of features after the operation of any cause tending to congest the vessels of the head, such as dietetic stimulation, coughing, laughing, sneezing, active exertion, the application of hot water to the surface, exposure to the sun, etc. After such occurrence, the blood will visibly distend the vessels of the face, the color deepen and spread, and all features of the disorder become decidedly conspicuous. Often a coexisting acne, or seborrhœa faciei participates in these changes. The disease is seen with almost equal frequency in both sexes, but women rarely exhibit the succeeding stage of the disorder next described.

[B.] Hypertrophica.

After a longer or shorter continuance of the condition described above, a new formation of connective tissue with cell infiltration proceeds *pari passu* with the telangiectasis. In this way small or large pin-head to egg-sized tumors are developed, more particularly about the tip or alæ of the nose, reddish or purplish in color, till the stage is reached which is elsewhere described as rhinophyma. The absence of inflammation is in these cases marked. The nose is often cold to the touch when bright red in hue, and may be of a peculiarly oily or greasy appearance in consequence of a seborrhœa oleosa of the part. The so-called "brandy-drinker's," "wine-drinker's," and "whiskey-drinker's," noses are of this class.

Etiology.—The disease in its milder manifestations is common to both sexes, the hypertrophic forms being rarer and practically limited to the male sex. The causes of the disorder are numerous, but always operate by producing at first active or passive distention of the bloodvessels of the upper portion of the body. Among these effective causes may be named gastric dyspepsia (especially though not exclusively associated with intemperate use of alcoholic stimulants, including brandy, whiskey, wine, and beer); articles of clothing, surgical apparatus, tumors, etc., compressing the larger vessels at the root of the neck; the long-continued action of heat and cold upon the face, as also the local effect of chemicals, and the influence of certain trades and occupations of life tending to produce congestion of the face, as, *e. g.*, among cooks, cab-drivers, swimming teachers, etc. In some cases there is a distinctly inherited tendency to distention of the capillaries of the skin of the face; in yet others, the rosaceous blemish is congenital. Disease of the uterus and other viscera may be the remote sources of the trouble.

Pathology.—The hyperæmia usually begins as a transitory phenomenon in the more deeply seated plexus of vessels and, after permanent distention has resulted, the vascular elements of the more superficial strata of the corium, and those surrounding the sebaceous glands and hair-follicles become involved. In the hypertrophic lesions, there are new formation of connective tissue, enlargement of all portions of the corium, hyperæmia and telangiectasis of the vessels, and dilatation of the sebaceous glands.

Diagnosis.—Acne rosacea is to be distinguished from uncomplicated rosacea by its characteristic lesions, comedones, papules, pustules, crusts, etc. In uncomplicated rosacea, there is only a macular lesion due to hyperæmia or telangiectasis. The two disorders, thus artificially distinguished, are often found the one complicating the other, an acne being the origin of the hyperæmia, which is the first rosaceous stage. The hypertrophic lesions of rosacea are also often thus associated with acneiform symptoms. Lupus, carcinoma, and syphilis of the regions affected by rosacea are commonly productive of ulcerative or destructive consequences which point to the nature of those affections.

Treatment.—The treatment of rosacea is practically the same as that of acne rosacea, to the chapter devoted to which the reader is referred. The vessels producing the rosaceous blemish are to be destroyed, preferably by electrolysis; but the result may also be accomplished less elegantly and perfectly by incisions, followed by cauterization; by curetting, by the Paquelin knife, by Brun's sharp spoon, Vidal's lancet, or B. Squire's multiple scarificator, the last-named instrument being only available for the larger lesions. The hypertrophic forms of rosacea are best remedied by the plastic operations of modern surgery.

Prognosis.—The lesions of rosacea, limited in extent, even though quite numerous, may be elegantly and permanently removed by electrolytic methods. The scars left after operations upon the larger lesions are usually superficial, and not disfiguring. The prognosis, after ablation of the largest hypertrophic lesions, is proportioned to the resources of surgery. In no case does general disease result.

Frambœsia.

Fr. *framboise*, raspberry.

Frambœsia is a disease of the African race chiefly, manifested in pin-point to egg-sized and larger papulo-tubercular lesions, appearing mostly on the face, resulting in discharges and crusts, and in cases followed by systemic symptoms.

This disorder, termed by Charlouis, Polypapilloma Tropica, is encountered chiefly among the negroes residing along the African coasts, in the West Indies, and in South America, where it is also known as Yaws and Pian. By Alibert it was termed MYCOSIS FRAMBŒSIOIDES. The contributions to the literature of this subject have been made chiefly by Drs. Milroy, Nicholls, and Imray, of Dominica, and Dr. Bowerbank, of Jamaica. The malady is said to be characterized at first by the occurrence of brownish-red, pin-head to pea-sized, flat maculo-papules. In these, one or more yellowish or whitish puncta become visible, which gradually develop into roundish papules or tubercles, resembling pea-sized and larger pustules of yellowish-red color. When the integument which covers

these gives way, a fetid, sero-purulent fluid exudes, and a dirty-yellowish, spongy mass projects from the rent, and enlarges subsequently, till it appears as a yellowish-red, crusted vegetation, an inch or more in diameter. This may degenerate into an offensive ulcer, whose destructive processes are accompanied by progressive emaciation and systemic disturbance. Instead of this retrogressive metamorphosis, the tubercle may shrivel into a dark-colored, crusted, and withered excrescence, yielding a fetid and ichorous discharge. The eruption occurs upon the face, neck, extremities, ano-genital region, and, rarely, upon the trunk.

The lesions are seldom the seat of subjective sensation. They have been considered contagious, and not susceptible of transmission by heredity. The course of the disease usually extends through from two to four months. It is also said to occur at all ages and in both sexes, one attack conferring immunity against another.

The constitutional symptoms of the malady include fever, osteo-copic pains, gastro-intestinal distress, arthritic troubles with ulcerations about the joints resulting in deformity, and eventually cachexia.

The disease is both inoculable and auto-inoculable. Inoculation results in the formation of a crust-covered ulcer, followed in from seven to fifteen days by a general eruption. The result is rarely fatal, the disease being concluded in most cases after a period of from three to four months duration.

Most of the authorities who have personally studied the disease as it occurs in the African race, believe that frambœsia is a disease *sui generis*. Certain it is that in both syphilitic and non-syphilitic subjects, who have never visited the countries where it is claimed that the disease is endemic, similar symptoms have been recognized and described. An interesting case of frambœsioid lesions in a syphilitic woman is reported by De Amicis;¹ and the author has personally treated three patients whose lesions corresponded very closely to those described above, no one of whom was syphilitic. It can be readily understood that a vegetation occurring upon the filthy skin of an unwashed negro in the tropics, might assume features which would be scarcely recognized as classical, in the *clîentele* of most practitioners in this country.

It is safest at present to regard the term frambœsia as largely descriptive in scope, and as including certain papillomatous and other vegetations projecting from the surface of the body as a result of filth, syphilis, tropical temperatures, and possibly of other unfavorable agencies operating upon the skin of a negro. A sufficient commentary upon these considerations is afforded by the admission of the West India surgeons, that mercury and the iodide of potassium are regarded as specifics for the disease as it exists in those islands, and that cleanliness is of prime importance.

¹ Cf. a translation of his paper by the author in the Archives of Derm., October, 1879, p. 39.

Parangi.

Kynsey has presented a report upon the nature of the disease which is thus designated in Ceylon, where it prevails. It appears to present mixed features of syphilis, land scurvy, yaws, pellagra, lupus, leprosy, scrofula, and less severe disorders, existing as an endemic in certain provinces of the island. It is clear, from the description of the symptoms recorded, that the nature of the disease has not yet been recognized. It was first described by Loos in 1868, and is now regarded as due to numerous causes, such as malnutrition induced by impure food and water, wretched hygienic surroundings, and infection from the discharges from ulcers.

There is, according to Christie,¹ an incubation period of from two to eight weeks, followed by the appearance of an ulcer over any bony prominence—the initial sore. This is followed by malaise and pyrexia, the premonitory fever lasting from two to eight days, and followed by the exanthem which appears first over the face, and later on the body. This eruption may be vesicular, pustular, pustulo-tubercular, or squamous, superficial ulcerations forming which become subsequently crusted. Rupioid, furuncular, and psoriasiform features are common in the course of the malady. Condylomata may appear at the anus. Ulcerations succeed later of a more formidable character, involving the nose, palate, and cheeks; the digits may be lost by gangrene; blebs occur; pricking pains are experienced; there may be anæsthesia of some part of the surface, associated with bronzing and glazing of the skin. The patient may perish of some intercurrent disorder or from exhaustion.

The duration of the disease is said to be from two to eight years. Treatment has been successful with the cautious employment of mercury and the iodide of potassium, and strict observance of the rules of hygiene.

DONDA NDUGU ("brother ulcer," or "ulcer that clings") is a disease existing in Central and Eastern Africa. Dr. James Christie,² who first described it, believes it to be identical with that from which Livingston suffered in 1870.

The disease is confined to the lower extremities, and occurs among the natives chiefly in the rainy season after a march toward the coast.

It is characterized by the appearance of whitish papules springing from a boggy swelling, seen often near the toes, heel, or dorsum of the foot. When incised, an extensive, deep-seated slough is found beneath the healthy tissue, bathed in an ichorous discharge. Severe rapidly-spreading ulcerations and death may ensue. Livingston extracted the ova of a species of maggot from such lesions in his own person; but Christie failed to discover them in his cases. The treatment is local, by the use of antiseptics after incision.

¹ See Anderson's *Treatise on Diseases of the Skin*.

² *Loc. cit.*

CLASS V.

ATROPHIES.

1. Of Pigment.

Absence of the pigment of the skin, giving rise to conspicuous disfigurement, is naturally most frequently encountered in those races of mankind whose skins are most abundantly provided with such pigment. The absence of pigment may be congenital or acquired, and partial or universal. Some confusion has been produced by the arbitrary distinction established by authors between the names intended to designate these several varieties of achromatia or leucopathia. In the following pages, leucoderma is the name employed to designate the pigment atrophy which is partial and congenital; albinismus, that which is universal and congenital; vitiligo, that which is acquired.

Leucoderma.

Gr. λευκος, white; δέρμα, skin.

Leucoderma is a partial congenital absence of pigment in the skin, most commonly observed in the colored races, and characterized by whitish patches or bands having an irregular border, the evidences of disease in such parts being limited to the changes in hue of the skin and hairs.

Symptoms.—In these cases, the patients being most often of the colored races, one or several whitish or rosy-whitish patches or bands, varying as to size, outline, or situation, may be seen at birth unprovided with pigment. These may have a symmetrical arrangement, in which case they commonly observe the areas of distribution of one or more cerebral or spinal nerves, or be asymmetrical in distribution. They are usually of circular outline, and may be found upon the scalp, face, nipples, breast, and genital region. The hairs found upon such parts are equally destitute of normal color, being usually white. Negroes thus marked are generally termed “piebald,” and the integument similarly affected in persons of other races has long been recognized as the “pied” or “piebald skin.” These blemishes, when symmetrical, like pigmentary nævi, exhibit a striking analogy with the symmetrical arrangement of the spots, bands, and stripes to be recognized in the furs of many of the lower

animals. The outline of the patch may be abrupt, or may gradually shade into that of the adjacent integument. At times, islands of pigmented skin are visible within the non-pigmented areas. The changes in these patches during later life may be insignificant, or they may individually increase in size with age, or even multiply. Rarely they regain pigment in later life. In no case is there an excess of pigment deposited at the border of the patch.

This condition is practically remediless.

Albinismus.

Lat. *albus*, white.

Albinismus is a congenital cutaneous achromia, characterized by universal defect of pigment, unaccompanied by textural changes in the skin.

Symptoms.—The term albinismus is limited to the congenital conditions of achromia induced by universal failure of cutaneous pigment.

This deformity is peculiar to individuals known as Albinoes, isolated instances of this anomaly occurring in all races, but more frequently among those having normally a hyperpigmentation of the skin, such as negroes. In the subjects of this anomaly, the skin has a milky-whitish, transparent, or rosy-tinted hue, and is usually of delicate texture; the hairs are silky and yellowish, whitish, or snowy-white in color; the iris, transparent or pinkish; and the pupil, in consequence of the defect of pigment in the choroid, is also reddish or pinkish. There is, as a result, nyctalopia and heliophobia with frequent nictitation, pupillary variations, and the semblance of myopia.

The pinkish hue of the skin is, in these individuals, due only to its translucency and vascularity. In no other respect, save as to pigment anomaly, does the skin of the healthy albino indicate disease; but the majority of persons thus deformed are far from vigorous.

In albinismus the defective condition of the pigment is usually unchanged throughout life. The causes of the deformity are unknown. The few cases of inherited albinismus on record are not sufficient to establish a law of inheritance in the face of many instances where such transmissibility has not occurred. The union of a male or female albino with an individual of normal color has been repeatedly followed by offspring without pigmentary peculiarities.

The condition is remediless; though it is probable that transfusion with the blood of a vigorous black-skinned African would largely modify the color characteristics of the pure albino.

Vitiligo.

Lat. *vitium*, a blemish.

Vitiligo is an acquired cutaneous achromia, exhibited in single or multiple, variously shaped and sized patches, unaccompanied by textural change in the skin, and usually bordered by tissues exhibiting pigmentary excess.

Symptoms.—The disorder is one observed among the several races, often in the negro, and not rarely among those of Aryan descent. It commonly occurs without the slightest appreciable disorder, subjective or objective, save that betrayed to the eye in the discoloration of the skin. One or several roundish, or very irregularly shaped, smooth, and well-defined, pale, or milky-white lines, streaks, or disks appear, often bordered at the periphery by an integument which assumes a light or dark brown or chocolate shade, this hue being by contrast most noticeable immediately at the contour of the patch, and imperceptibly fading into the normal color of the outlying integument. The hairs or lanugo filaments growing from the affected area may or may not be blanched. Most commonly they are; a condition particularly conspicuous when, as is not rarely observed, a vitiliginous disk extends from the back or side of the neck, well into the scalp, in which case the outline of that portion of the scalp involved is clearly defined by the whitened pilary growth.

Lesser describes a condition termed by him "*Poliosis Circumscripta Acquisita*," in which the hairs were thus blanched in a single area of an unaffected scalp, an observation which the author has confirmed in a single case.

The surfaces thus blanched are otherwise unchanged. In point of subjective and objective sensation, secretion from the follicles, and the condition of both epidermis and corium, aside from the dyschromia there is no departure from a normal standard. The disease may progress by the coalescence of relatively small areas of involvement till a large portion of the trunk, thighs, or buttocks is involved. Hall¹ reports the case of a dark mulatto who became "perfectly white" with the exception of a patch on the chin. Levy² reports three instances of total disappearance of pigment. It is then, as Kaposi has well shown, that the eye of the observer is struck no longer by the unusual whiteness of the involved patches; but this whiteness being generalized and apparently that proper to the person, by the intermediate peripheral belts of a deeper and unusual color. The greater portion of the surface of the body may be finally thus involved. The most common seats of the disease are the face, the neck, the backs of the hands, and the extremities; and in these, since the course of the disease is exceedingly slow, there may be

¹ Louisville Med. News, 1880, x, p. 148.

² Recueil de Mém. de Méd. de Chirurg. et de Pharm. mil., 1865.

for years no apparent extension of any involved area. Upon the backs of the hands the disfigurement is usually more conspicuous at some seasons of the year than at others, a circumstance which probably explains the reported instances of recurrence and total disappearance of the disease in successive years. These changes are probably due to the influence of the sweat in washing the pigment to the surface. Such an effect would, of course, render the hyper-pigmented peripheral zone of a vitiliginous disk much the more conspicuous.

The health of the subjects of this disorder is usually unimpaired. A morbid mental condition is often produced when the disfigurement involves the facial region, especially in women of middle life.

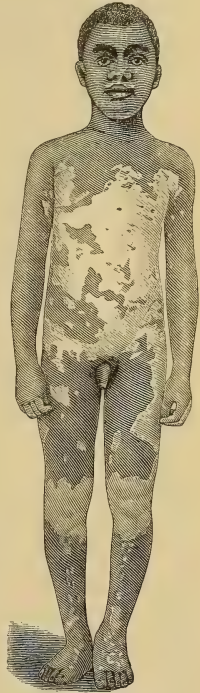
As in several of the other pigmentary disorders of the skin, the patches of vitiligo may be symmetrical in distribution, with their outlines limited to the areas supplied by certain nerves. Lesser, however, attributes this peculiarity to the symmetrical anatomical relations of the skin in symmetrical regions of the body, an explanation which will not suffice for all cases.

The course of the disorder is evidently toward increase even where all the pigment is not removed from the surface. Generally a term is reached beyond which the atrophy does not progress. In exceptional cases the parts which have lost their pigment again acquire it.

Patients of lymphatic temperament and blonde complexion (often they are women in early adult life) will occasionally apply to a physician for relief of dark patches on the skin of the face. Examination of these faces often discloses faint lines, ribbons, or streaks of pigment about one or both cheeks, the temples, or the lips. But a yet more careful scrutiny recognizes an undue whiteness of the skin, with exceedingly faint and irregular outline near or next to these pigmented portions of which complaint is made. I am inclined to set all these cases down as instances of vitiligo, even though they rarely exhibit the definite roundish contour of the typical patch of the disease.

In some patients vitiligo is most conspicuous in summer; in others, this occurs in winter. These peculiarities may depend upon changes either in the pigmented or unpigmented portions of the skin.

FIG. 51.



Vitiligo in a Negro boy.
Piffard's case.

Etiology.—Vitiligo occurs in both sexes, and in individuals of all complexions and ages; though it is commonly observed in early or middle life. It is at times coincident with scleroderma, morphœa, lepra, variola, and other diseases with similar cutaneous symptoms, though it occurs independently of all such. Its etiology must be regarded as obscure, unless the strong probabilities in favor of its occurrence under the influence of perturbed innervation be accepted as conclusive. I am strongly inclined to believe that the disorder is of more frequent occurrence than dermatological statistics tend to show. Many persons who are the subjects of vitiligo of an inconspicuous part of the body, do not consult a physician with regard to the nature of the disease, as it occasions no physical distress. Close observation of the people with whom one comes in contact in public will often verify this fact.

Pathology.—The pathological anatomy of vitiligo may one day be described in the changes which occur in the trophic nerves supplying the skin. At present, the cutaneous changes alone are recognized; and these are, probably, as regards the pigment, neither strictly atrophic nor hypertrophic. It is true that there is an apparent atrophy in one portion of the skin, and an apparent hypertrophy in another; but this may be merely in cases falling short of complete pigment atrophy, a dystrophia or ataxia of the epidermis, a disturbance of arrangement and distribution, as of the blood in the face, in certain cardiac diseases, when the skin is temporarily streaked or mottled by the irregularity in the distribution of the circulating fluid. Under the microscope no change is recognized in the skin beyond the absence of pigment.

Diagnosis.—Mr. Hutchinson, of London, has devoted an entire chapter in his valuable *Lectures on Clinical Surgery* to the importance of the diagnosis between leucoderma and white leprosy; yet it seems incredible that the symptoms characteristic of a systemic disease could be confounded with those described above, where there is no cutaneous anaesthesia or structural change in the integument. This latter is, in fact, the basis of discrimination between all purely pigmentary and all non-pigmentary changes in the skin-color, separating them widely from parasitic diseases (tinea versicolor), morphœa, lepra, and syphilis. From the chloasmata, which are always accompanied by hyper-pigmentation, vitiligo is readily differentiated.

Treatment.—Much chagrin will be saved both physician and patient, by practically regarding vitiligo as not amenable to treatment. Patients occasionally recover while under treatment; the latter has, however, generally contributed but very little to the result. Arsenic and iron internally, recommended highly by some authors, have repeatedly failed to accomplish any appreciable results as regards dyschromia. By efforts directed to the removal of the hyper-pigmentation in the border of the achromic patches, the disfigurement may be somewhat lessened. The method of arriving at this end is

described in connection with the treatment of chloasma. It is possible that further experimentation with hypodermatic injections of pilocarpine, which have in a limited number of cases been followed by disappearance of the disease, may warrant a less unfavorable view of the results of treatment.

Prognosis.—The health of the subject of the malady is not impaired. The disease is practically incurable, progressing usually till it has obtained a maximum of development; and then, as a rule, remaining unchanged throughout life.

Canities.

Lat. *canus*, white.

Canities is that condition of the hairs in which they become in various degrees decolorized as the result of atrophy of their pigment.

Symptoms.—In Canities, or Poliosis, hairs appear in all shades of whiteness, from dirty-gray to silvery-white, and this either as a general or partial, congenital or acquired, physiological or pathological, prematurely, rapidly, or gradually acquired condition. General congenital whiteness of the hairs is seen in albinismus, where pigment has never been supplied to the filaments. Partial congenital whiteness is occasionally seen, in meshes limited in size, varying in color from a pure white to a deeper hue, which from birth refuse to receive pigment in due proportion, and thus contrast strangely with the pigmented filaments by which they are surrounded.

Physiological decoloration of the hairs in variable shades is the well-known result of advancing years. When premature, it may be considered as resulting from pathological causes, or due to other individual or inherited peculiarities. It may occur gradually or suddenly; in the former case, the hairs usually pass through varying shades of gray to white, and this at any period after puberty though usually after middle life is reached. Recurrence to the darker shades is rarely noted. Leonard, of Detroit,¹ cites a number of curious instances in which changes of this sort have occurred. Generally, however, canities of advanced years is progressive and permanent, occurring earliest on the temples and the beard of man, then involving the vertex of the head. Finally, the hairs of the entire surface undergo a similar pigmentary loss.

It should be remembered that the coloring of the hairs of the head is, to a greater extent than is commonly appreciated, subject to variation from the operation of external causes. Thus washing the hair with alkaline solutions has a bleaching effect, while profuse sweating, inunction with fats, subjection to smoke, and the temperature changes of the summer, have the contrary influence, the last named being possibly due to the increased sweating in the hot season.

Cases of sudden blanching of the hairs, occurring, for example, in a single night, are sufficiently numerous and well authenticated to be

¹ The Hair, etc., Detroit, 1880.

admitted as among the rare possibilities of a clinical experience. Nervous disorders, both centric and peripheral, such as long-continued mental depression, melancholia, paralysis, neuralgia, and traumatism of nerves or of nervous centres, may be followed by more or less rapid, general or partial, and permanent canities. The same result may follow wasting disorders, such as typhoid fever, in which cases, as distinguished from the others, properly pigmented hairs often replace eventually those which were white. It is well known that the first hairs springing from a patch of alopecia areata where repair is in progress, are often white or whitish, and replaced later by those of normal color.

Landois has shown that many instances of suddenly occurring canities depend solely upon the rapid appearance of air-bubbles in the shaft, in excess of the average number. Hairs whitened in alternate patches, rings, nodes, or spots have been described by Landois, Karsch, Richelot, Spiess, and others.

Etiology.—Whitening of the hair may be senile in origin, in which case it is customary to declare it to be physiological; or be due to heredity; to deficient nutrition or innervation of the hair-follicles; to functional or organic nervous affections (fright, facial atrophy, etc.); or to local chemical action upon the hairs. Premature canities in young adults is often associated with the occupations of life, being much more common in men who from necessity have the head habitually covered, and who yet lead sedentary lives.

Pathology.—The pigment substance of the hairs is both cellular and intercellular in its distribution, and is supplied by the papilla. Decoloration of the hairs may be due to failure of supply or removal of pigment; to unevenness of the hair surface (by which the light is refracted); or to air-bubbles between and within the fibre-cells. In senile and presenile decolorations, there is commonly actual diminution of pigment, which has been ascribed to failure of the papilla to produce it. Sudden canities is ascribed to the sudden appearance of air-bubbles in quantity in the shafts of the hairs. Alternations of color in the hairs are ascribed to successive periods of activity and rest in the pigment-producing function of the follicle.

Treatment.—McCall Anderson, while admitting that the treatment of canities is unsatisfactory, suggests, in cases of accidental presenile blanching, strict attention to the general health, arsenic internally, and local stimulation, as in alopecia simplex. But the chief means of remedying premature canities is by the action of dyes, and these are, in the main, compounded of solutions of nitrate of silver, acetate of lead, and the sulphate of iron. The chief objections to their use are the disagreeable coloring of the scalp which results from incautious use of the dye, and the consequent liability to irritation of the surface. When applied to the hair alone, these substances are not known to have a deleterious effect upon the health. Kaposi gives the following formulæ for hair dyes:

To obtain a black color—

R. Argent. nitrat.	gr. xv;	1	M.
Ammon. carb.	grs. xxij;	15	
Unguent. adipis	ʒj;	32	

or,

R. Argent. nit.	ʒj;	4	M.
Plumb. acetat	gr. xv;	1	
Aq. Cogn.	gtt. xv;	1	
Aq. ros.	ad fʒiij;	96	

To obtain a brown shade—

R. Acid. pyrogall.	gr. xv;	1	M.
Aq. Cogn.	ʒss;	2	
Aq. ros.	ʒjss;	48	

Anderson first applies a lotion of the bichloride of mercury, two grains to the ounce (0.133–32.), and follows this with a solution of the hyposulphite of sodium, one drachm to the ounce (4.–32.), for the production of a jet-black shade.

2. Of Hair.

Alopecia.

Gr. ἀλώπηξ, a fox.

Alopecia is a physiological or pathological, symmetrical or asymmetrical, partial or complete deficiency of hair.

Alopecia, Calvities, Defluvium Capillorum, or Deficiency of Hair, may be due to arrested pilary development at birth, or to any cause interfering with the regular physiological process by which hairs are constantly shed and replaced by new filaments.

CONGENITAL ALOPECIA.—In rare cases, there is a partial or complete absence of hairs at birth, in consequence of an arrested development of the pilary system. Generally, however, these appendages of the skin are merely of tardy appearance, their eruption being extraordinarily delayed, as in cases of retarded dentition.

When this condition persists to adult years, as is very rarely the case, neither hairs nor teeth may be formed, as in Danz's observation. The author has had a child seven years of age presented at his clinic, with only a wisp of white hairs upon the vertex of the scalp.

In localized congenital alopecia, hairs rarely develop after maturity, and here also abnormalities of teeth may be coincident features. In a case examined by Schede, the sebaceous glands were found opening on the free surface of the skin. In the deeper part of the cutis, straight or convoluted hair-rudiments were visible in the tubules, without perceptible internal cavity, which corresponded to the external root-sheath.

SENILE ALOPECIA.—The baldness of old age, whether occurring upon the vertex, so as to produce a tonsure like that of the priest, or whether limited to the frontal region, or so extensive as to involve nearly the entire calvarium, leaving a fringe of hairs at the occiput and temples merely, is always remarkable for its symmetry. There is hence a certain degree of dignity added to the appearance of the head, which an asymmetrical loss of hair could not produce. It may occur at varying ages of advanced life, and is quite frequently traceable to an early *seborrhœa sicca* or *alopecia furfuracea*. It is much more common in men than in women; and this largely because of the difference in the manner of covering the head in the two sexes, women usually wearing an exceedingly light dress for the head, while men encase the latter with tight-fitting caps or hats which interfere with proper aëration of the scalp. Individuals of the male sex, also, in consequence of their usually wearing the hair short, bestow far less time upon the care and dressing of it. In uncivilized races, where these differences are less marked, and where men pay great attention to the ornamentation of the scalp, senile baldness is of less frequent occurrence.

The bald surface is, as a rule, smooth and shining; it is occasionally the seat of a *seborrhœa oleosa*. The hair-follicles, with their accessory sebaceous glands, and occasionally the skin itself are often in a state of atrophy, though there may be dilatation of the sebaceous glands. There is commonly some blanching of the hairs, which are gradually shed, as also of those which remain, though this is not constant. These conditions are much less frequent upon the surface covered by the beard, and pubic and axillary hairs, where, according to Michelson, the hairs in advanced years are often denser than at other periods of life.

PREMATURE or PRESENILE ALOPECIA, or premature calvities, is that form of acquired baldness which occurs in individuals who have not attained advanced years. It may be either idiopathic or symptomatic.

The idiopathic variety does not originate in the diseases of the scalp or of the general economy which are recognized as effective in the production of other forms of baldness. It is, as with senile alopecia, more common in men than in women, and is, in the former sex, decidedly prevalent among those leading sedentary lives. The loss of hair may be produced either rapidly, or, more commonly, slowly, and at any period after the puberal epoch. The pilary growth may gradually and evenly recede from the forehead, or, what is more frequent, recede on either side of the median line, leaving a more vigorous crop extending centrally toward the root of the nose, or produce the effect of the tonsure described above. It is always symmetrical, and usually remediless, partial calvities being the permanent result of the process. In many families, there is a predisposition to this premature loss of hair, which may be recognized in the males of succeeding generations.

Symptomatic premature alopecia is the frequent result of a series of local and general disorders which vary in their gravity. Sudden and gradual symmetrical thinning of the hairs or complete baldness, is sufficiently common as the result of seborrhœa sicca, psoriasis, and other cutaneous affections of the scalp; the asymmetrical forms being more common in asymmetrical scalp diseases, such as those resulting from the destructive action of the vegetable parasites. Rarely, however, asymmetrical seborrhœa, occurring in patches upon the side of the head, may produce such disfigurement. Among the systemic disorders which have this effect, may be named almost all severe febrile processes, including the exanthemata, profound disorders of the nervous centres, lepra, and syphilis. In the last-named disease it may occur as a precocious or tardy symptom, the former being always symmetrical, variable as to the degree of loss, rarely so severe as to cause baldness, and, occurring as it does usually in early adult years, generally quite remediable. The tardy form, on the other hand, is usually associated with the evolution or destructive involution of gummata of the scalp, and the resulting baldness is often permanent.

The forms of alopecia described above as encountered upon the scalp, may involve also other hairy portions of the body, as of the axillæ and pubis; and these also in variable degrees.

Pathology.—In senile and premature alopecia, a fibrous endarteritis is described by Michelson as first occurring to narrow the lumen of the vessels, which starves the follicular and peri-follicular tissues till an atrophy results. The epidermis becomes thinned; the derma contracts; the hair-follicles shrink, while their funnel-shaped orifices, occupied with loose horny masses or lanugo hairs, remain patulous. Convolutions of pigmented, roundish nuclei, aborted results of hair-formation, may rarely be recognized at the base of the empty hair-sacs. The coil- and sebaceous glands and muscles are but slightly altered.

Treatment.—The treatment of alopecia in general, is that which stimulates the nutrition of the hair-follicle by producing in its periphery a species of transitory and artificial hyperæmia. This is usually accomplished by friction of the scalp with a brush, aided by the local employment of one or more alcoholic, oily, alkaline, and other stimulating applications described below. The general health must in such cases receive special attention. A large number of individuals suffering from premature baldness have a distaste for fat; and the ingestion of cod-liver and other nutritious oils, fat meat, or linseed and linsced oils, as recommended by Sherwell, is for such patients advisable. Iron, strychnia, tar, phosphorus, and arsenic, often meet the indications presented.

A scanty crop of short, soft, downy hairs may, however, push for a time to the surface, but soon yield before the inactivity of the follicles in which they are implanted. Inasmuch, however, as exceptionally brilliant results are occasionally obtained by treatment, the latter is always deserving of a trial. When the alopecia is symptomatic of some local disease of the scalp, the latter of course is first to be relieved by the measures, appropriate for each, as, for example,

the use of parasitocides in those of parasitic origin. The total or partial symmetrical losses of hair occurring in the course of systemic disorders have a much more hopeful prognosis. Exception, however, is to be made of the tardy syphilitic alopecia associated with local scalp lesions or profound cachexia. In all forms of syphilitic alopecia, local as well as constitutional treatment is indicated.

Local treatment may often be preceded by shampooing with either the Sarg fluid soap, or combinations of glycerine, alcohol, and sapo viridis to meet the requirements of individual cases. The scalp, after all such shampooings, should be anointed with lanoline, plain or salicylated; vaseline; the oil of benne; or scented castor oil. In obstinate cases the nail-brush may be vigorously used over insensitive scalps at the time of the shampooing. The salve used may be often advantageously medicated with sulphur, chrysarobin, tar, cantharides, or mercury. Formulæ for lotions and salves to be used in this way, are appended:

R. Hydrarg. chlorid. corros.	grs. v ;	33	
Spts. vin. rectif.	℥ij ;	64	
Glycerin.	℥ss ;	16	
Aq. ros.	℥vj ;	192	M.
For external use over the scalp.			
R. Picis liquid. [vel. ol. rusci]) āā ℥j ;	4	
Ol. lavendul.			
Ol. pin. sylvestr.		192	M.
	℥vj ;		[Piffard.]
R. Hydrarg. chlorid. mit.	℥iv ;	5	
Hydrarg. ammon. chlor.	℥ij ;	2 66	
Vaselin.	ad ℥j ;	32	M.
			[Bronson.]
R. Ol. sabinæ	gtt. v-xxx ;	33-2.	
Spts. vin. rectif.	℥j ;	32	M.
			[Pincus.]
R. Hydrarg. bichlorid.	gr. ss ;	032	
Cantharid. tinct.	f℥j ;	4	
Medull. bovis.	℥ss ;	16	
Ol. rosar.	q. s. ;		M.
			[Van Harlingen.]
R. Acid. chrysophanic.	gr. x ;	66	
Glycerin.	℥xl ;	2 66	
Vaselin.	℥vij ;	28	M.
			[Anderson.]
R. Sulphur. præcip.	℥j ;	4	
Ungt. aq. ros. }	āā ℥ss ;		
Vaselin.		16	M.

André is said to have induced an abundant growth of hair in an obstinate case of total baldness by hypodermatic injections of the muriate of pilocarpine, from one-eighth to one-fourth (0.008-0.016) of a grain being injected on each occasion.

The treatment of alopecia is that also of alopecia furfuracea, and alopecia areata.

Alopecia Furfuracea,

or Pityriasis Capitis, or Alopecia Pityrodes Capillitii. Under this title is included that loss of hair, varying greatly in degree from moderate thinning of the growth to considerable symmetrical baldness, usually of the vertex, which, at the onset, is scarcely distinguishable from alopecia simplex, alopecia prematura or præsenilis, and seborrhœa of the scalp in some of its forms. It is exceedingly common, especially in men.

The disorder, essentially chronic in course, is usually first manifested in early adult life, though persons of both sexes, from twelve to fifteen years of age, may at these ages display typical forms of the disease. After some months or years, the subject of the affection discovers a relatively large loss of hairs from the scalp producing thinness of the growth upon the vertex, near the brow or over the temples. The hairs, when examined *in situ* upon the scalp, are shortened and rebellious to the comb and brush, projecting stiffly from the brushed surface, being also harsh, lustreless, and rarely well anointed with sebum. Those shed from the scalp, especially of men, are found to be nearer in type to the lanugo or downy hairs than those which fall physiologically from a vigorous growth of hair in a healthy subject; that is, they are short, thin, pointed, and often with an indistinct medulla.

At the same time the scalp is in process of incessant desquamation, the scales being of pityriasic type, and exceedingly abundant so long as the alopecia is not complete, after which, the epidermal catarrh promptly disappears. The mealy, bran-like scales are shed in a fine shower upon the clothing of the patient, and, the disease being more common in men than in women, its traces are often distinct upon the collar of the coat after the fingers have been passed through the scalp. The same flour-like, whitish and grayish scales are distinct and plentiful among the hairs to which they cling, and also can be recognized over the scalp surface when the latter is inspected with care. Greasy conditions of this product of secretion upon the scalp are due to complications with a seborrhœa of this region, and the reader is urged to consult the chapter devoted to that malady in order to study this subject from its several pathological sides. According to Pincus, three-fifths by weight of the scales furnished by the scalp in this condition, are inspissated products of sebaceous secretion.

Often, however (and it is this important feature which justifies the separate consideration of alopecia furfuracea and seborrhœa capitis), the scales are true squamæ; dry, corneous, and epithelial, rather than fatty and seborrhœic. The subjective sensations are then usually marked; the scalp is often scratched and torn by the nails, and is, in some cases, reddened and thickened. There may be also decided general cachexia. Among women the patients are often nervous and sallow, with a long history of distressing headache,

uterine hemorrhage, or hepatic disorder. These are simply states in which there is malnutrition of the scalp.

The scalp may or may not be the seat of perspiration. Eczema, of pustular type, occasionally complicates these cases.

Etiology.—The disorder may be due to inheritance, to any systemic affection impairing the bodily vigor, to long-continued neglect of the hygiene of the scalp, or to such diseases of women as are accompanied by menstrual irregularities. The confinement necessitated by sedentary occupations of life; those trades and professions which permit or require the constant covering of the head of men; and the wearing of heavy hats or bonnets interfering with the aëration of the scalp, all furnish conditions for the occurrence of the disease.

In 1882, Lassar and Bishop produced alopecia by rubbing upon the sound surface of the skin of animals the epidermic detritus and hairs furnished by a patient affected with the disease. This lends color to the possibilities of contagion which should not be ignored.

Pathology.—According to Pincus, the vessels of the scalp are unaltered, but the corium beneath the affected surface is thinned in proportion to the severity of the disease. Nothing characteristic can be discovered in the hairs removed from an affected patch.

Diagnosis.—The disease is distinguished from seborrhœa of the scalp by the epithelial character of a great part of the dry discharge occurring symmetrically from the scalp surface, coupled with the symmetrical and largely vertical alopecia. The asymmetrical greasy patches of pure seborrhœa capitis, pasting the hairs to the scalp, which may be limited to the occipital or temporal region of one side, are strikingly different. Michelson and Pincus place reliance in establishing a diagnosis, upon the firmer attachment of the scalp and the discovery upon four successive days of a proportion of one-eighth of pointed hairs to the entire pilary loss, with an average length of thirteen centimetres.

Treatment.—The general and local treatment of alopecia furfuracea is practically that of alopecia simplex, alopecia areata, and seborrhœa of the scalp.

Pincus applies upon compresses the sodium bicarbonate in solution sufficiently concentrated to stimulate but not redden non-hairy portions of the skin. Sulphur, tannin, the oil of savin, the bichloride of mercury, tar, naphthol, resorcin, the peroxide of hydrogen (in two volumes), and ichthyol have all been successfully employed in the management of these cases. Each is best preceded by the shampooing described in the preceding chapter. Schmitz, Schüller, and André have all reported excellent results from hypodermatic injections twice weekly of one-twelfth to one-sixth of a grain (0.005–0.010) of the muriate of pilocarpine in distilled water.

No remedy has a higher and more established value in the local management of these cases, whether in an early or late stage, than sulphur. In the strength of from one-half to one drachm (2–4.) of precipitated sulphur to the ounce (32.) of vaseline or lanoline, it should be well rubbed into the scalp after each shampooing. When

there is marked improvement of the pityriasic catarrh, one of the stimulating lotions may be used that are described in the pages devoted to the other varieties of alopecia.

Alopecia Areata.

Lat. *area*, a vacant space (*arere*, to wither, Fox).

Alopecia Areata is a disease of the pilary follicles characterized by the sudden occurrence of general and symmetrical, or partial and asymmetrical baldness, the latter exhibited in distinctly circumscribed, smooth, whitish patches, which are, in typical cases, completely destitute of hair.

Symptoms.—This disorder, which is more common than is generally believed by physicians, may be, at its outset, preceded or accompanied by symptoms of ill-health, such as headache, malaise, inappetence, loss of flesh, or malnutrition. In yet other cases, cephalalgia, paræsthesia, pruritus, and formication of the skin of the scalp and other regions indicate some disturbance of the nervous centres.

Often, however, the patients of this class are in sound health, the disease then manifesting itself by the sudden and complete loss of hair over a circumscribed patch, usually upon one side of the scalp, so rapidly effected that they often describe a first discovery of the fact at the toilet of the morning. After a variable period of time, other patches of baldness may occur, all of the hairy portions of the body being liable to the affection, the scalp first in order, next the beard, then the genitalia, axillæ, brows, eyelids, and the general surface of the body. In early childhood cases occur in which the closest scrutiny with a glass fails to detect a single filament of hair upon any portion of the skin.

The patches may be roundish, ovalish, or irregularly shaped, and may vary greatly in size, from that of a small coin upward. They may be so numerous as to disfigure greatly the entire scalp; and though these touch at the borders when thus numerous, they can scarcely be said to coalesce, as the individual elementary areas are usually recognizable. Their surface is smooth, whitish, and often perfectly destitute of hairs; it is rarely tumid, and slightly reddened. The hairs at the periphery are usually of full length and fixed *in situ*, but are occasionally fragile, and readily withdrawn from their follicles. Stumps of such friable hairs may be at times seen at the margin of the patch. In point of abnormal subjective sensations, temperature, or disease of the surface from which the hairs have fallen, there is, as a rule, complete absence of symptoms. The skin, when the evolution of the disease is complete, is usually normal to the touch, and pliable. Occasionally it is anæmic, thinned, and more movable over the corium than in the scalp which is not the seat of the disease.

In incomplete evolution and in periods of repair, downy hairs may appear upon the surface, at times considerably differing in color from those springing from unaltered regions of the scalp.

The loss of hair from the surface may be: rarely, gradual; preceded by mild pruritus (Besnier et Doyon); or followed by anæ-

thesia (Neumann). Its apogee once attained, the course of the disease is variable; it may persist for periods without apparent change; or new patches may form while those of an older date either proceed to exhibit wholly or in part the pilary growth; or, this latter accomplished, suffer a fresh loss by relapse. Shifting areas of the disease may, without question, in this manner invade the entire surface of the scalp, which yet at any one moment of time may exhibit a loss of but the half of its hirsute covering.

There is some reason for believing that the disease has a relatively fixed period of evolution, though the exact limits of the latter are not known. Few individuals suffer less than one year; the most are relieved within a period of two years. These remarks, however, apply to the asymmetrical forms of the disease in the relatively young. The symmetrical alopecia areata of the middle-aged is, in my experience, a far more formidable affection.

Few diseases are the source of greater mental distress than those of the class now under consideration. The prominent deformity thus occasioned debars the subject of the malady from social relations of many kinds, and this intensifies the morbid feeling which every reflected view of the head awakens. This is particularly true of women. The successful management of these cases calls often for the supporting assurances of the practitioner.

Etiology.—The causes of the disease are obscure. It is not transmitted by heredity nor by contagion; and it is not due to the presence of a parasite. It occurs with equal proportion in the two sexes; and among these, irrespective of social condition. Of the partial and asymmetrical forms, the larger number of cases occur in young subjects, from childhood to early adult life. The severe and generalized forms are more often encountered in middle-aged persons. In the latter class especially, it is occasionally observed to follow the obscure disorders of the nervous centres due to sudden or prolonged undue excitation. In young subjects one may often discover a peculiar repugnance to the ingestion of fat and meat, a point to which attention is called in considering alopecia simplex.

The neurotic explanation of this disorder is more generally accepted as facts accumulate bearing on its etiology. The nervous symptoms which often precede or accompany the appearance of the bald patches are strikingly suggestive, and led Von Bärensprung to announce his theory of "inherited innervation" as a cause of the malady. Further, the occurrence of the disease after shock of the nervous centres is significant.

Collier¹ cites two cases in which alopecia areata followed a blow upon the temporal region, and Sir Dyce Duckworth reports the case of a gentleman who sustained an injury to the head in a fall from a dog-cart, who suffered as a result from permanent loss of hair. Overall² has reported a similar instance; Joseph³ has produced the disease by section of nerves in a cat.

¹ Lancet, Amer. Ed., August, 1881, p. 130.

³ Centralt. f. med. Wissenschaft, 1886, No. 11.

² Alien. and Neurol., St. Louis, 1886.

On the other hand, v. Sehlen,¹ in 1885, exhibited in the Medical Congress at Strasbourg, micrococci about the sheaths and roots of the hairs, which he claimed to have demonstrated to be the cause of the disease.

Pathology.—The anatomical lesions which produce alopecia areata have not been recognized. The hairs fallen from the surface, when examined with the microscope, are seen to be atrophied in the bulb and shaft, though Rindfleisch describes in certain cases a node-like enlargement of the hair-shaft after its escape from the follicle. Fracture of the shaft is in some cases also noted, evidently an accident of the process. No parasite can be discovered in uncomplicated cases. I have in one instance detected spores and mycelia of the trichophyton in the hairs, a coincidence of two disorders which has been observed by others.

In default of all positive knowledge on the subject, the majority of dermatologists have assumed the disease to be a trophoneurosis, a view sustained by the etiological history of certain cases.

Michelson, however, regards the vasomotor nerves as presiding over the nutritive changes determining the loss of hairs. Schultze recognized some thinning of the scalp in sections examined by him. Future investigation may establish some difference other than that of degree between the partial asymmetrical disease of the young and the more general symmetrical affection of middle life; in which the entire scalp, lids, brows, pubes, and axillæ are completely shorn of their filaments. It is, however, held to-day that all forms of alopecia are parasitic in origin and are therefore all related.

Diagnosis.—Alopecia areata is to be distinguished from vitiligo of the hairy portions of the surface by the preservation of the pilary growth in the disease last named, the filaments, moreover, having usually a blanched and whitened look, due to the absence of pigment.

From ringworm and favus of the scalp the disease in question is readily differentiated, by the suddenness of its onset; the absence of all stumps of hairs, scales, crusts, and evidences of irritation in the involved area; the whiteness, smoothness, and complete baldness of the latter; and, above all, by the failure to detect with the microscope the evidence of the presence of a vegetable parasite.

The asymmetrical patches of seborrhœa of the scalp are recognized by the presence of the fatty plates pasting the hairs to the surface, as well as by the slow and very gradual onset of the disorder.

Other forms of baldness than those named above are all of gradual and, in their early stages, of symmetrical development. Those resulting from traumatic injuries of the scalp, with cicatricial results, are easily determined as having such an origin.

Treatment.—One must necessarily view with some distrust all treatment for that disease which in the course of months or years usually terminates in spontaneous recovery, and in the meantime may bid defiance to each and every therapeutic measure. Neverthe-

¹ *Annal. de Derm. et de Syph.*, June, 1886.

less, persistent and hopeful management of even the apparently desperate cases is occasionally rewarded by such brilliant consequences that, however slight may be the foundation for a belief in the value of the therapy employed, it deserves recognition and trial.

The hygienic management of every case is a matter of great importance. Tobacco should in every form be denied to subjects of the disease addicted to its use. Iron, quinine, nux vomica, cod-liver oil, phosphorus and the hypophosphites, arsenic, and strychnia are often indicated, and used with great benefit.

The indication for local treatment is to increase the physiological afflux of blood to the hair-follicles. With this end in view, the affected parts are to be bathed daily in water as hot as can be tolerated, then dried, and scrubbed with a stimulating lotion. The articles usually employed are alcohol, ether, turpentine, ammonia, camphor, cantharides, carbolic acid, oil of mace, croton oil, tincture of nux vomica, tincture of capsicum, tincture of aconite, castor oil, tar, iodine, sulphur, and the mercurials. All frequently fail. Several of these in combination seem at times to be of service.

The following is a formula, the ingredients of which may be varied to suit the indications in different cases :

R. Ol. ricini	f℥ss;	16	
Acid. carbolic.	℥j;	4	
Cantharid. tinct.	℥ss;	16	
Ol. rosmarin.	gtt. xv;	1	
Spts. vin. rectific.	ad f℥iv;	128	M.
Sig. For external use over the scalp with friction.			

The formulæ containing chrysophanic acid and the bichloride of mercury, given on a preceding page in connection with the treatment of alopecia furfuracea, are well worth trying.

Dr. Nevins, of Liverpool, mops the entire surface with strong liquor ammoniæ. The speediest return of hair the author has ever observed in a patch of alopecia areata, followed a single application of pure creasote to the surface, resulting in moderate vesication. The spirit of turpentine has been similarly employed.

Faradization of the scalp with a stiff wire brush, pushed to the point of producing moderate hyperæmia, has been followed by excellent results.

Wilson recommends :

R. Ol. amygd. dulc.	f℥j;	32	
Capsici tinct.	f℥ij;	8	
Liq. ammon. fort.	f℥j;	32	
Spts. rosmarin.	f℥v;	160	
Ol. limon.	f℥j;	4	M.

Here is another stimulating application :

M. Ol. terebinth. }			
Ol. ricini }	āā f℥ss;	16	
Origan. tinct.	f℥j;	4	
Ol. camphorat.	f℥j;	32	
Liniment. volatil.	ad f℥ij;	96	M.

Sig. For external use with a brush till the scalp is irritated.

Repeated blisterings of the scalp with cantharidal collodion, the spirit of green soap, and petroleum have also been employed externally with success. The ointment of chrysarobin has the disadvantage of staining not only the remaining hairs, but often the face in consequence of the frequency of its transmission to that locality by the medium of the hands. When patients, however, consent to its use, it is worthy of a trial, as its application has been speedily followed by a vigorous growth of new pilary filaments. André employed ten hypodermatic injections of muriate of pilocarpine in one-eighth grain (0.008) doses, which resulted, in the case of a middle-aged woman affected with total symmetrical baldness, in an abundant growth of hair.

Lassar and Bishop¹ operated by first vigorously shampooing the entire scalp daily with a strong solution of tar soap for fifteen minutes; rinsing next with an irrigator, by the aid of warm water, followed by cold water, and subsequently drying. Then a corrosive sublimate wash (1.: 300. adde spts. cologniens., glycerin., āā 100.) was applied, and the head again dried; then a solution of naphthol (naphthol, 0.5; spts. dil., 70.; aq. dest., 30.) was rubbed in. Lastly, carbolized oil, 1½ per cent., was poured slowly over the scalp, entering the cleansed and expanded orifices of the glands, so that seven drachms (28.) could be employed at a time. This was pursued daily for eight weeks.

Prognosis.—From what precedes, it will be justly inferred that, as regards the relief of the baldness, the asymmetrical development of the patches in youth is much more favorable than the symmetrical general disease of middle life, the latter being often remediless. The prognosis of the same affection of the beard is quite favorable. In all cases, the practitioner should actively persevere to the end. In no case should any encouragement be given as to complete relief within the year, though such exceptionally short careers of the disease are at times observed.

The disease, when limited to the regions of the beard in young men, usually concludes its stadium in the course of about one year, with a favorable termination. Shaving should be regularly practised, as the deformity is thus rendered somewhat less conspicuous, and the bald surface should be frequently stimulated with one or several of the topical applications named above. Alcoholic solutions of the mercuric bichloride, half to one grain (0.033–0.066) to the ounce (32.) are to be well rubbed over the patch or patches once or twice daily. The disease in this locality may coexist with benignant syphilis, the latter disease pursuing a career considerably shortened by vigorous treatment, while the former, none the less, endures from twelve to fourteen months, long after the syphilitic cachexia has been relieved. At the end of this time, recovery occurs precisely as in those cases which have presented no history of infection.

¹ Loc cit.

In all cases of implication of the head, where the scalp is involved in either sex, and where the peculiar hypochondriasis of the disease is developed, a wig should be worn for the sake of its moral effect upon the sufferer. For such, however, its use should be limited to social occasions, visits, etc., as the persistent wearing of a perruque indoors seems to lengthen somewhat the course of the disease.

ALOPECIA NEUROTICA.—Under this title Michelson includes all cases of loss of hair, (1) coincident with or following traumatism of cerebral or peripheral nerves; (2) those associated with diseases of the nervous system due to internal causes. As to the first class, instances of alopecia are given above, where, as in the case reported by Sir Dyce Duckworth, the loss followed a fall upon the head. Todd, Schultze, Fischer, and Michelson have also made observations of this character. In the second category are the local and general losses of hair reported as associated with melancholia, migraine, neuralgias of persistent type, and facial and other paralyses. In some of them the skin and panniculus adiposus have wasted, the hairs falling in stripes or ribbon-shaped streaks, with partial or complete canities of those left in the follicles.

Atrophia Pilorum Propria.

Atrophy of the hair may be either symptomatic or idiopathic. Illustrations of the first named condition are observed in phthisis, syphilis, seborrhœa, ringworm of the scalp, and almost all general diseases interfering with the nutrition of the pilary growth. The filaments then become dry, lustreless, friable in both longitudinal and transverse diameters, and diminished in each dimension.

There are several recognized forms of idiopathic atrophy of the hair. One of these exists in those long hairs which are seen to be irregularly thinned or flattened in the shaft, and split at the point into two or more recurving fibrillæ, a condition noted, for the most part, in few hairs scattered among those of full development and vigor. This especially localized atrophy seems to be peculiar to one or more follicles merely; and is quite analogous to the condition in which there appears among the vigorous pigmented hairs of early life, a single blanched filament.

Under the title "An Undescribed Form of Atrophy of the Hair of the Beard," Duhring¹ gives the details of an exceedingly interesting case, in which either at the bulb or at a variable distance from it but within the follicle, there was fission of the hair filament into from two to four stalks with coincident atrophy of the bulb itself and consequent irritation of the surface. The patient exhibited to a marked degree the species of hypochondriasis to which the subjects of disease of the hair seem specially prone. Through the kindness of Dr. Duhring, the author had the opportunity of privately examining under the microscope some specimens of these hairs, the

¹ Amer. Journ. of the Med. Sci., July, 1878.

appearances of which are admirably portrayed in the woodcut which illustrates his paper. This disorder is not induced by a parasite.

In the year 1887, a gentleman applied to the author for advice who was in a fair condition of general health, but the hairs of whose beard, when closely examined, both with the naked eye and the microscope, presented a striking resemblance to those described and figured by Duhring. Microphotographs of specimens of these hairs show clearly that in every case the fission of the filament extended completely to the base of the follicle and produced local irritation there. The hairs over several square inches of surface were thus uniformly affected, normal filaments being in such areas absent. The interfollicular spaces, however, seemed to be abnormally widened, as though in these areas such normal hairs might have fallen in consequence of a species of alopecia. The peculiar appearance of the beard to the naked eye was striking. The disease was much more strongly marked on the chin than on the cheeks or upper lip. The curling of some of the splinters was complete and characteristic.

Trichorexis Nodosa,

first described by Wilks and Beigel, is a condition in which the hairs display nodose swellings along the shaft at irregular distances, the beard and moustache being most often affected, though rarely there is involvement also of the hairs of the scalp. Sherwell,¹ in this country, has

FIG. 52.



Trichorexis nodosa. (After SCHWIMMER.)

¹ Arch. of Derm., July, 1879.

described one such case. The hairs are brittle; and fracture usually occurs through the node, leaving a broom-like mass of filaments projecting there, while the internodular portions of the shaft appear normal save for some enlargement of the medulla. The fragility of the hair at the centre of the node, seems to depend upon the tension and consequent fissure of the cortical layer which is greatest at that point. No parasite has been discovered in hairs thus affected, their bulbs, moreover, being firmly adherent in their follicles. Little is known as regards appropriate treatment of the disease, which is, it must be said, persistent and disfiguring. Shaving has been followed in some of Kaposi's cases by good results; while Roeser¹ advocates the local employment of dilute tincture of cantharides.

Smith,² of Dublin, has also reported a curious CASE OF NODOSE SWELLINGS of the shafts of the hairs, differing somewhat from those described above. Through the kindness of Dr. Duhring, the author has been enabled to exhibit some of these hairs in Chicago, microphotographs of which were, at his suggestion, taken by Dr. Belfield, of Chicago. Here there was no fragility at the nodes, which commencing near the scalp were quite regularly displayed along the shaft, the fracture being always internodular. The spherical swellings along the shaft were also pigmented in a brown hue, and these contrasting with the non-pigmented color of the unaffected portions of the shaft, gave the hairs a singularly "checkered" appearance. No parasite was discernible in any of the specimens.

Michelson, under the title "Expansions and Fissures of the Hairs," discusses together these and other abnormalities of the pilary system and concludes as to the most of them, that they are not separate diseases but expressions of an abnormal dryness and brittleness of the hair due to atrophy. Cases of broom-like fissuring and division of the shaft into larger longitudinal splinters, he regards as equivalent processes both beginning by a cuticular loss and often merging into each other.

This view may be sound with regard to a number of these rare affections; but even a superficial examination of the longitudinal splinters shown in Duhring's and my cases, reveals the fact that the shaft represented by the sum of all its splinters, is greater than that of the average hair in diameter and circumference. Even the naked eye can recognize this fact. The epilating forceps seizing a single hair in the case of the author's patient, was distended as in the grasping of as many sound filaments as are represented by splinters.

The therapy of these cases is not well determined. Michelson believes shaving to be useless and recommends systematic shampooing and oiling—the process pursued in the cases treated by the author. Arsenic internally is worth trying in all cases where it is not contraindicated.

¹ *Annal. de Derm. et de Syph.*, 1877-78, pp. 185, et seq.

² *Brit. Med. Journ.*, May 1, 1880.

Piedra.

is described as still another condition of the hairs in which dense node-like masses are attached to or surround the hair shaft. Morris describes these as containing masses of spores. In a single case, that of a young girl sent to him by Dr. Holmes, of the Eye and Ear Infirmary, the author discovered there were numerous, jet-black, horny, and dense spherical masses attached to the hairs of the eyelashes of each lid of both eyes. The author was unfortunately prevented from securing some of those hairs for microscopical examination.

3. Of Nail.

Atrophia Unguis.

Atrophy of the nails may be a congenital or acquired condition, in which there is deficient or defective production of the nail substance. The congenital forms are usually observed when the digits are poorly developed, and there is at the same time a deficiency of the pilary growth. The nails may be entirely absent in these cases or merely tardy of evolution; occasionally they are seen, especially upon rudimentary or coalesced digits, in defective and distorted shapes.

In acquired atrophy, the nail may be changed either in color, bulk, elasticity, firmness, shape, or position. Thus the nail may be expanded and thin, narrow and acuminate, friable, furrowed, laminated, ridged, or otherwise distorted. It may be uniformly or partially lustreless, or singularly striped, or even speckled irregularly.

These changes in various combinations result from traumatism chiefly, such injuries, for example, as are common to the toes in the boot or shoe, and to the fingers when actively employed in the trades. Excessive heat and cold, and constant maceration in chemicals (as among photographers, dyers, and druggists) often operate injuriously upon the nail tissue. All serious disturbances of systemic nutrition, such as are incident to prolonged fevers, surgical accidents, tuberculosis, ataxic conditions, etc., interfere visibly with the nutrition and development of the nail. The syphilitic changes in the nail are commonly due to gummatous involvement of the matrix. Severe ulceration of the matrix is often followed by atrophic or other distorted conditions of the nail-substance.

The treatment of these conditions is largely that of the disorders upon which they depend. The nails may often with advantage be soaked in unguents, scraped to a desired smoothness, well trimmed, and then protected by wax, leather stalls, etc., from injurious contacts. Arsenic internally is said to be useful in some affections of this kind.

4. Of Cutis.

Atrophia Cutis.

Gr. α, privitive; and τροφή, nutrition.

Atrophy of the skin is an idiopathic or symptomatic, diffuse or partial, diminution of the mass of the integument, or its reduction in size after loss or degeneration of one or more of its histological elements.

The skin and its appendages, in common with other organs of the body, may suffer from atrophy, either idiopathic or symptomatic in character, and general or partial in extent. It may result from either quantitative or qualitative, retrogressive changes, losing thus its normal dimensions, either from wasting of one or all of its normal elements, or from degenerative changes in the latter, or from their complete and final disappearance. Naturally these changes may be simultaneous. They are usually effected slowly, and the results are persistent. They are frequent concomitants of a long list of other pathological alterations. Usually, however, they succeed the latter. Under the general title of atrophy of the skin, several rare forms of the disease have been considered.

Atrophia Senilis.

This is the frequently recognized cutaneous degeneration peculiar to old age. The skin becomes colored in various shades of brown, either uniformly or in tolerably distinct maculations over the face, dorsum of the hands, the genitalia and the anus, and the lower extremities. It is seamed with furrows and wrinkles, often in various degrees desquamates slightly, and, losing the cushion of fat upon which it rested in earlier life, is either readily raised from the subcutaneous structures, or depends from them in loose folds. Pea- to finger-nail sized, verruciform, dirty-yellowish accumulations of epidermis become visible, often in numbers on the face and elsewhere, extending either as far as the deeper portions of the horny layer or the rete.

The cutaneous atrophy in such cases may be characterized by unusual dryness, with failure of reproduction of the elements of the skin after the loss by physiological waste. The epidermis and derma, by their shrivelling, lose largely their characteristic interdigitations, while the elements of which they are composed are impoverished in protoplasm. Vessels, relatively numerous before, disappear; pigment multiplies; the hairs are either produced as lanugo filaments, or fall as the papillæ in the fundus of their sacs flatten; the root-sheaths encroach upon the follicle; while the sebaceous and coil-glands may either disappear, or dilate and become filled with an epidermic detritus.

In other cases the skin elements undergo a true metamorphosis, fatty, lardaceous, amyloid, colloid, waxy, or vitreous.

Atrophia Maculosa et Striata.

Partial idiopathic atrophy of the skin occurs most frequently in linear cicatriform striæ or streaks, an inch or more in length, developed chiefly about the hips, buttocks, and upper portion of the thighs in both sexes of adult years. Less frequently they are observed upon the neck, trunk, and extremities. They are insidious of development, indelibly persistent, and appear as sensibly thinned, glistening, and often depressed lines or furrows, having a whitish hue, with an occasional blending of a very delicate purplish tint. They are usually multiple, and at times abundantly displayed, running in various curves, for the most part parallel with the long axis of the body. They occasion no subjective sensation and their etiology is unknown.

Much more rarely the atrophic areas occur in macular patches. The lesions are then fewer, more isolated, and are discovered more frequently upon the extremities, but also on the trunk, varying in size from a coffee-bean to a chestnut. This form of atrophy often succeeds either an erythematous or pigmented condition, which very slowly changes till there is formed the dead white, round or oval, often insensitive patch, resembling coarsely a vaccine cicatrix. Taylor,¹ and Atkinson,² have described some very interesting features in this process; and the author has been able to verify the accuracy of their observations in two typical cases of the affection he has had the opportunity of studying. In both, the lesions occurred about the ankles of women with menstrual derangements, the largest spot of all attaining the size of the transverse section of a hen's egg. The patches were in various degrees insensitive, very slightly depressed, smooth, glistening, and scar-like, the condition being the sequel of brown to chocolate tinted pigmentations, limited to the spaces which become afterward atrophic. Cantani³ describes similar atrophic maculæ, where there had been a bluish-red color, evidently due to the development of minute vascular capillaries. The sensibility of the skin was unaltered. Under the microscope both the linear and macular lesions show separation of the fibrous fasciculi, effacement of the papillary layer of the corium, and diminution in the number of vessels and glandular appendages. In Taylor's and the author's cases, the maculæ were quite hairless; in Atkinson's, the hairs were relatively few in number.

Féré and Quemonne⁴ have also described two singular cases observed in Charcot's clinic. In one of these, minute, whitish, elongated cicatrices appeared, about which there was marked pigmentation of the skin. They were abundant in the lumbar region. In a second case, brownish lines appeared over the breast of an unmarried woman, which gradually grew paler, while others appeared over the skin of the throat. Those which were recent had a brownish or bluish-red color; others were of a dead white hue; some appeared over the

¹ Archives of Dermatology, vol. ii. No. 2, 1867.

² Il Morgagni, May, 1881.

³ Rich. and Lou. Med. Journ., Nov. 16, 1877.

⁴ Le Progrès Méd., Oct. 29, 1881, p. 837.

lumbar region and the upper part of the buttocks; but there was none over the belly, groins, and the thighs. In both cases the regions attacked were those in which there was no suspicion that the *vergetures* resulted from overdistention of the skin.

These lesions are to be distinguished from the sequelæ of morphœa, syphilis, and other diseases capable of leaving atrophic areas. A previous history of such pathological conditions would usually be needful; but in the cases where there is precedent telangiectasis, hyperæmia, or marked pigmentation of the spot, the diagnosis from morphœa will be, as several authors suggest, attended with some difficulty.

Partial symptomatic atrophy of the skin, in its simplest form, results from the traumatic action of tumors (ovarian, uterine, mesenteric, etc.), by which it is distended. The well-known results of a first pregnancy conducted to full term, are linear atrophies, at first of a violet tint, and later of a dead whitish hue, which are indistinguishable, both clinically and pathologically, from the idiopathic lesions of similar aspect. Partial symptomatic atrophy, with degeneration of the cutaneous elements (fatty, lardaceous, waxy, etc.), is the sequel common to a long list of cutaneous affections.

BLANCHING ATROPHY OF THE SKIN.—Several instances of this peculiar degeneration of the integument have been observed. It is characterized by an unnatural whiteness or pallor of the surface, with considerable tension and tenuity of the epidermis, usually limited to the extremities (the arms and palmar faces, and the thighs and legs and plantar faces); moderate exfoliation occurs, and the latter, in connection with the tension to which the skin is subjected, is responsible for more or less painful subjective sensations. The disorder is chronic in its course, and may originate in infancy.

This condition is occasionally illustrated by patients affected with a sensori-motor paralysis of one limb, when the muscles waste and the fat-cells persist, multiply, or wholly disappear. The skin of such limbs, wholly or in patches, becomes unnaturally soft and delicate, and undergoes a loss of pigment and hairs at the same time that its bulk actually diminishes. The nails may participate in the process. In yet other cases of trophic disturbance, the skin shrivels and assumes instead of a whitish, a yellowish, or yellowish-gray tinge.

"GLOSSY FINGERS."—The "glossy fingers" described by Sir James Paget, are probably of the same general character. They are "tapering, smooth, hairless, unwrinkled, glossy, pink, and ruddy, or blotched, as if with permanent chilblains." One or several fingers are affected. The condition is associated with neuralgia or nervous impairment. The relations of this and several symmetrical disorders of the hands and feet to the so-called "perforating ulcer of the foot," "asphyxia" of the extremities, "symmetrical gangrene" of the extremities, and so-called "dying of the fingers," all manifestly trophoneurotic affections (see the chapter on this subject), have not yet been satisfactorily established.

CLASS VI.

NEW GROWTHS.

1. Of Connective Tissue.

Keloid.

Gr. $\chi\eta\lambda\acute{\eta}$, a crab's claw.

Keloid is a benign cutaneous neoplasm, occurring as one or more elevated, whitish and reddish, firm and elastic nodules, plaques, ridges, or radiating striæ; or as several of such forms in combination, resembling an hypertrophied cicatrix.

The term Keloid, first given to this disease by Alibert, should be restricted to it exclusively. It has also been termed Cheloid, Kelis, and Cancroid. The so-called Keloid of Addison, is known to-day more properly as scleroderma.

Authors have described two varieties of this disease: first, the "true," "spontaneous," idiopathic form; second, the "false," "spurious," or cicatricial. In these pages the first described condition is alone considered as entitled to the name Keloid. The so-called spurious form of the affection is described in the pages devoted to Cicatrix.

Symptoms.—The new-formation of this disease is always of spontaneous origin, never resulting from attempts at repair of ulcerative, traumatic, or other losses of tissue. Dense, generally elastic nodules are seen embedded in the corium, or projecting above the level of the skin and firmly attached to it. They are usually very slow of evolution, and, having once obtained their full development and assumed one of the several shapes which they affect, usually persist for a lifetime. These forms are globular or semi-globular, whitish or reddish nodules, buttons, or plaques, with roundish or ovoid outline; linear elevated striæ, bands, ridges resembling cords, ribbons, or tapes, in irregular outline and disposition; or combinations of two or more of these figures. A common form over the sternum, and in other situations where the development of the growth in every direction is impeded, is that of a larger central mass with two or more diminishing and declining prolongations bearing a remote resemblance to the body and claws of a crab. The lesions vary in size from a small pea to a large saucer, the largest including the outlying points of the limbs or radiating ridges. Over it the skin is reddish or whitish in color, smooth, hairless, and occasionally hyper-sensitive to pressure and heat. The growth is also at times the seat of spontaneous pain.

The most frequent site of the disease is the anterior surface of the chest, but it is observed also upon the face, neck, ears, breast, hands, between the scapulæ, and on the extremities. It may be encountered, indeed, upon any portion of the body. I have seen it upon the penis of the negro. It is far more common in the colored than in the white races. Though frequently multiple, there are rarely more than a score of these growths visible at one time upon the skin of one person.

FIG. 53.



Keloid.

Etiology.—The origin of the disease is exceedingly obscure. Neither age, sex, nor previous disorder of the skin seems to have any bearing upon its production. It is seen in remarkably vigorous persons (more often decidedly in the negro race), but also upon those who are weakly. The very young and very old are more rarely affected.

Pathology.—No little confusion has occurred in consequence of the failure to distinguish clearly between keloid and cicatrix. Epithelioma, sarcoma, fibroma, and other diseases have existed with or complicated keloid, and the anatomical features of the last-named disorder been thus obscured.

In true keloid, the papillary layer of the corium and the inter-papillary projections of the rete downward are intact. The new formation is strictly limited to the middle and lower portions of the corium, where whitish, tendinous fibres of connective tissue, dispersed for the most part parallel to the surface of the rete, are

numerous. Lymph-vessels, with proliferated endothelium, compressed by longitudinal growth of the fibres, pass in both vertical and horizontal planes, for the most part remaining patulous. There are few spindle cells and nucleated cells. Many of the blood-vascular channels are choked or absent.

Diagnosis.—The clinical distinction between keloid and cicatrix rests mainly upon the history of the lesion whether, that is, it be of spontaneous origin, or has resulted from previous disease or traumatism. The situation of the lesions of the former, often over the sternum, the infrequency of multiple tumors, its claw-like prolongations, and yellowish-white, reddish, or grayish-white color, all point to the nature of the disease.

Treatment.—Removal of keloid by cauterization and excision is not to be practised, as the growth does not fail to reappear. Vidal has successfully employed multiple linear scarifications. Various stimulating applications may also be made with a view to promote resorption, such as the spirit of green soap, iodated glycerine, iodine in ointment and tincture, and mercurial and lead plasters. Where there is pain, anodyne unguents may be employed topically, such as the freshly prepared belladonna plaster, or the ointments of belladonna, stramonium, and opium. By far the most elegant of these, and one which also is capable of producing an alterative effect, is the oleate of mercury and morphia, manufactured by Squibb, of Brooklyn.

Internally, quinine, strychnine, arsenic, and the iodide of potassium have been exhibited with varying success. The author has never happened to see a case where internal medication had been followed by appreciable results in the diminution of the growth.

Prognosis.—As regards the general condition of the patient, the prognosis is favorable. Very rarely there is spontaneous resorption of the nodule or tumor. Generally the latter may be expected to persist, after full evolution is attained, for an indefinite period of time.

Cicatrix.

Cicatrix is a dense, smooth, whitish or reddish new-formation of the skin, occurring where there has been a loss of connective tissue following traumatism or tissue degeneration.

A cicatrix, as has already been shown, is a new formation of the skin, replacing connective tissue which has been lost by traumatism, by ulceration, or by some other pathological process. The most of cicatrices, as, for example, those following the ulcerations of syphilis, the operations of the surgeon, or the dermatitis produced by a severe burn, are reparative in their effect.

They vary greatly in shape, size, color, and other characteristics. They may be smooth, glossy, shining, scaling, dull-whitish in color, or pinkish from vascularization of the surface. They may be linear, fan-shaped, circular, corded, ridged, dotted, crateriform, or tumor-like. They may be raised above the skin, on a level with it, or depressed below it. They may be deeply attached to periosteum or

bone, or be readily movable over the panniculus adiposus. They are of deeper color when young, and increase in whiteness with age. They are unprovided, as a rule, with hairs, or coil- or sebaceous glands.

The most insignificant cicatrices are those resulting from clean, incised, and punctured wounds and lesions of similar grade. Here the wounded surface furnishes a connective tissue that seals up the solution of continuity. Healing is then said to be by "first intention," and is at an end, so far as regards the gross appearances, in one to two days.

Healing by "second intention" occurs after a longer period in solutions of continuity of greater extent, and in those of the same extent in aseptic conditions. Here also newly formed connective tissue concludes the successive transformations from epithelium and leucocytes to embryonal vessels, pus, plasma, and cicatrix.

Certain peculiarities of cicatrix are seen in special disorders where they are produced. The circular, oval, reniform, horse-shoe-shaped, S-shaped, and figure-of-eight-shaped scars, thin and flexible, are characteristic of syphilis. The cicatrices of variola, zona, and ecthyma are slightly different each from the other, though all are of small size and depressed. Those of lupus, scrofulosis, and dermatitis caloricæ of severe grade are exceedingly irregular and often corded. Hypertrophy of cicatrices is the condition already described as spurious or false keloid. Here the resemblance to true keloid is produced by a tumor-like development of the cicatrix, forming a ridge, button, knob, indurated fold, or puckered and irregularly circumscribed whitish or reddish lesion.

These have been described as following almost every traumatism and destructive process to which the integument is liable.

A case of cicatrix undergoing involution, has been described by Dyce Duckworth, in a man aged fifty, who suffered from rheumatic fever, on two occasions, ten years before the date of report. He had pericarditis, and was blistered over the præcordia. Nine months afterward, lines of cicatricial growth began to form in the scar left by the blister, and they extended rapidly. In two years' time they were still enlarging. In seven years, some subsidence was noticed, and, when exhibited ten years after their first formation, involution was markedly progressing. The case illustrates the frequent origin of scar tissue, its common occurrence over the sternum, and the fact of the subsidence of the new growth in the course of time.¹

Clulton² reports a case of cicatrix following erosion of a lupous patch, an issue which may be regarded as the most fortunate for any case.

Purdon³ announces the same result following a psoriasis treated with green soap; and Taylor⁴ reports the same as a rare result of syphilis.

Keloid-like cicatrix of the cheeks, is far from uncommon following acne. Its lesion is usually smoothed down in the process of time, after the disappearance of the sebaceous gland disorder, till the deformity is greatly lessened, and often scarcely noticeable.

¹ Brit. Med. Journ., October 8, 1881, p. 597.

² Journ. of Cutan. and Vener. Dis., 1883, p. 203.

³ Ibid., January 20, 1883.

⁴ Ibid., 1883, p. 308.

Etiology.—The formation of a cicatrix is always preceded by a traumatism or pathological loss of tissue, the remote causes of which have the widest possible variation. Hypertrophied cicatrix, or spurious keloid, is always developed from a simple scar. It affects persons of all ages and sexes, but with decided preference for the negro race. The traumatism may occur from piercing the ears for ear-rings, the operations of surgery, leech-bites, the deeper burns from fire, and wounds inflicted by accident. It often follows cutting the hands with glass; and has been caused by the spur of a cock. It is sufficiently common after the occurrence of acne indurata, but the latter is of all its forms the least persistent. In general, it may be concluded, however, that it occurs chiefly in those whose skins have a special tendency to such development.

Pathology.—Kaposi has demonstrated a difference, rather of disposition than of kind, between keloid, hypertrophied cicatrix, and "cicatricial keloid." In the first, the epidermis is described as intact, while the corium at one level exhibits whitish, thickened, and closely packed bundles of fibrous elements, lying parallel to the long axis of the tumor and the surface of the skin, traversed here and there diagonally by similar bundles, all probably derived originally from the sheaths of the bloodvessels. In the second, the papillary layer of the corium has been destroyed by the process of which the cicatrix is a resultant, and the latter does not surpass its original limits by invading the unaltered peripheral tissues. The connective-tissue bundles are here also much less closely aggregated. In the third, the two forms described above can be seen combined, the papillary layer being destroyed, and the peripheral parts invaded by the connective-tissue new growth.

Diagnosis.—The distinction between hypertrophied cicatrix and keloid is based upon the fact, chiefly clinical, that the last named is a spontaneous affection and the former is always the result of a traumatic or pathological loss of tissue.

In any doubtful case a distinction between hypertrophied cicatrix and keloid would be needless from a practical point of view. Following the piercing of the lobule of the ear for the insertion of ear-rings, the lesion is distinguishable by pinching the part between the fingers, when a globular, pea- to cherry-sized mass will be felt firmly embedded in the derma between the reflected folds of the integument. Upon the face, after the occurrence of acne, it can be usually seen as a puckered ridge, often transverse in direction, occupying the region of the cheek.

Treatment.—The resources of modern surgery are to be trusted in the production of laudable cicatrices when all antiseptic precautions are observed. The treatment of pathological conditions likely to be followed by cicatrices, is the treatment largely of the special disease in which such loss of tissue occurs, *e. g.*, the ulcer left by a degenerating syphilitic gumma of the skin.

The treatment of hypertrophied cicatrix, or false keloid, is the treatment of keloid already given.

Fibroma.

Lat. *fibra*, a fibre.

Fibromata are cutaneous or subcutaneous neoplastic tumors, projecting in different degrees from the surface, single or multiple, of several grades of density, distinctly circumscribed, covered either by a sound and attached, or rarely by an ulcerated integument, and varying in size from a small pea to a fetal head.

Symptoms.—Fibroma is a disease characterized usually by the occurrence of numerous roundish, softish, semi-solid, or solid growths,

FIG. 54.



Multiple fibromata. (GROSS.)

FIG. 55.



Large single fibroma. (From a photograph of one of the author's patients.)

varying in size from that of a small pea to tumors of several pounds weight, though more rarely the neoplasm is single. They are often

called molluscous fibromata, as the disease was termed at one time *molluscum fibrosum*. When quite small they are seated within or beneath the skin, where they can be distinguished as distinctly circumscribed nodules, buttons, or plaques often slightly projecting. When more fully developed they become sessile, pedunculated, or largely pendulous tumors, hanging from the part to which they are attached so as to resemble in shape a cherry, a nipple, a pear, or a sausage. They are commonly covered by an integument which is natural in color and suppleness, though the latter may be traversed by bloodvessels; sprinkled with comedones or patent orifices of sebaceous gland ducts; thinned or thickened, or in a state of ulceration; the last named being usually the result of externally operating causes in tumors of large size. They are productive of no subjective sensation beyond the more or less uncomfortable tension produced by the weight of those attaining a great size. When multiple, they may be seen in various degrees of development, covering in hundreds the entire body, especially the scalp, face, trunk, genitals, and extremities. Upon the lids, they may interfere with vision by the production of ptosis. To the touch they may be felt as softish, somewhat elastic, firm, or lobulated masses, though at times nothing but a double fold of skin can be perceived, or a cord-like contained body.

They are often congenital. When closely set together upon the skin, and of small size and pendulous, the features of the disease are characteristic.

Schwimmer distinguishes between these lesions, usually congenital (termed by him, soft fibroma), and the dense tumors of similar anatomical features (termed by him, firm or hard fibromas). The latter are circumscribed, deeply seated, very slow of development, and apt to induce changes in the tissues which surround them. They may undergo fatty degeneration, or ossification, or calcification.

Dr. R. W. Taylor, of New York,¹ in an interesting paper on the mode of development and course of fibroma, and its relations to acrochordon and other cutaneous offshoots, describes the first appearance of the disease as a roundish spot over which the skin is uplifted. It is of a light pinkish color. The tumor is soft and suggests to the touch a thinning of the derma beneath it. By firm pressure over such lesions when they have in size attained about half an inch in diameter, they may be slowly pushed downward into the skin, and the sensation is produced to the touch, of a foramen in the derma. Fusion between the new growth and the skin over it, is of early occurrence. The roundish or oval form of the tumor depends upon the direction of the bundles of the subcutaneous tissues of the part invaded. After reaching full development, it may be replaced by warty growths, pouches, or nipples. Involution is more common when the patient is under thirty years of age. Dermatolysis is produced by great activity of the growth of one, or fusion of several tumors, by which a flap of skin is formed.

¹ Journ. of Cutan. and Genito-Urinary Dis., Feb 1887.

The large tumors in the skin of the patient carefully studied by Taylor, suggested, when handled, that they contained boiled vermicelli, or a number of thread-worms, and contrasted thus with the firm or semi-solid lesions of older patients affected with fibroma. The soft and gelatinous quality of the neoplasm in earlier life is believed to be proportioned to the age of the subject, and this rapid development and succulency of structure are the only conditions of a perfect involution which are not to be looked for in the firmer, more slowly growing fibromata of later years.

When involution occurs, after full maturity of the lesions has been attained, the softish contents of the tumors are adherent to the cutis above, and the cutaneous atrophy is proportioned to the rapidity of development of the growth and the firmness of its structure. Then comes a purse-like pedunculation of the tumor, produced by encroachment of the skin upon its pedicle, rendering its invagination, supposably possible before, afterward difficult or impossible. Then gradually the neoplasm loses its skin-connection. Eventually, in many cases only fibrous cords are left, evidently attached to the connective tissue beneath, the skin color paling as the vascular tension correspondingly diminishes. Soon the dermal foramen closes, and the involution process is at an end. Then empty and wrinkled pouches or purses of integument are left, whose further shrinking produces multiple warty or nipple-like elevations of tissue (under the microscope recognized as fibrous structures with epithelial envelope), much in color like the virgin-nipple, or the scrotum of a boy. From four months to a year was requisite for the mature development of the tumors, and nearly as long a period for the completion of the process of involution. The dermatolytic flap was permanent. Dr. Taylor believes, as a result of his interesting study, that there is the closest possible relation between fibroma, and the verrucous growths called *acrochordon* and *ecphyma mollusciforme*.

Etiology.—The disease is peculiar to neither sex; and, though observed in adults, is commonly first developed in childhood. It cannot be claimed as peculiar to any race, though in this country the negroes have probably furnished the largest field for its observation. Hebra called attention to the low standard of physical and mental development of the subjects of the disease seen by him, a fact well illustrated in a case recently presented at the author's clinic, the patient being an exceedingly myopic, poorly nourished, white, male dwarf, whose body was literally covered with fibromata from the scalp to the feet. In view of this well-established clinical fact, the hereditability of the disease, which is rendered probable by recorded observations, seems capable of explanation. It has been noted in three successive generations and in several children of one family. The precise cause of the disease is unknown. It is, however, reasonable to conclude that it is due to a vice of local development under the influence of a constitutional predisposition.

Pathology.—Fibromata originate in gelatinous connective-tissue elements, which undergo metamorphosis into bundles of fibres, the

tumors always exhibiting more of the formed material in the outer, and the formative or protoplasmic material in the central parts of the mass. The fibrous bundles pass downward, and unite with those of the derma or subcutaneous tissue, forming thus a firm attachment for the pedicle of all pedunculated tumors. There is some question as to whether these growths originate in the deep interspaces of the corium, or in the connective tissue about the hair-follicles or fat lobules.

Heitzmann¹ divides the fibrous tumors of the skin into two classes :
 “*a.* Dense, fibrous, connective-tissue bundles with relatively few spindle-shaped protoplasmic bodies or solid nuclei running in all directions, apparently without any regularity, thus producing a hard and dense felt-like tissue. This is an imitation of the structure of aponeuroses or interarticular ligaments, if scantily supplied with bloodvessels ; or of periosteum and perichondrium, if holding a larger number of bloodvessels. *b.* Dense, fibrous, connective-tissue bundles, holding in their meshes a jelly-like basis substance, with a small number of protoplasmic bodies. This variety is an imitation of the structure met with in the valves of the heart mainly upon their insertions. The supply of bloodvessels, as a rule, is scanty. Both varieties are common tumors of the skin, in the shape of hard, sessile nodules and nodes (hard fibroma) ; or tumors of greatly varying size but softer consistence (soft or myxo-fibroma) ; or shallow, as a rule pigmented, elevations of the skin (nævi) ; or scar-like, irregularly branching, sometimes freely vascularized new formations (keloid).”

A very large number of fibromata are of the so-called “mixed” variety. Some spring from the nerve-sheaths, and actually contain nervous filaments (neuro-fibroma) ; others from muscular, vascular, and glandular tissues, the compound tumor receiving in this way a part of its constituent elements ; often warty growths form with participation of epithelium in the connective tissue, constituting thus an epithelioma (so-called “papilloma”). The large pendulous tumors of nævus lipomatodes may be examples of mixed fibromata whose surface is composed of pigmented and hairy skin.

Diagnosis.—The tumors of molluscum fibrosum are to be distinguished clinically from multiple cutaneous sarcomata, by the violaceous or reddish color of the latter, their absence of pedunculation, their greater tendency to ulceration, and their evidently malignant character. From the tubercles of lepra they are differentiated by the entire absence of constitutional impairment and their general development in far greater multiplicity. The tumors of molluscum epitheliale differ in their contents, superficial location, and in the frequent presence of the dark punctum at their summits.

Neuroma is usually painful ; lipoma less frequently multiple and pedunculated, and more suggestive, when handled, of the “pillowy” sensation to the touch. Warty growths are readily distinguished by their vegetating summits ; and the gummata of syphilis, by the concomitant or prior symptoms of the existence of lues.

¹ Archiv. of Dermat., October, 1880, p. 378

Treatment.—The treatment of large single fibromata is surgical; involving the employment of knife, ligature, écraseur, or galvano- or thermo-cauterization. Multiple lesions are often so numerous as to forbid such interference. When there is a distinct vice of development or inherited tendency to the disease, little can be accomplished in the way of treatment.

Prognosis.—Rarely, one or more of these lesions disappear by spontaneous involution. More commonly they persist after their evolution is completed. Marasmus, tuberculosis, and a fatal result may occur. One or several of the tumors may become sources of danger from the occurrence in them of an active inflammation with resulting degeneration and septicæmic consequences. The disease, however, does not, in many cases, shorten life. In general, the prognosis of multiple fibromata may be regarded as unfavorable.

Neuroma.

Gr. *νεῦρον*, nerve.

Neuroma is a disease characterized by the occurrence of single or multiple, pin-head to small nut-sized, usually painful cutaneous papules or tubercles, constituted of a new growth of connective tissue and non-medullated nerves.

Symptoms.—But few cases of this rare disease are recorded. The description appended is a summary of the symptoms detailed in the reports of Duhring,¹ of Rump,² and of Kosinski.³

The patients were all men of middle life or advanced years, who exhibited upon the shoulders, arms, thighs, or buttocks, numerous disseminated and defined, pin-head to hazel-nut sized, roundish or oval nodules or tubercles. They were either painful, or painless at the onset and painful later. In Rump's case, which was a sample of the false neuromata of Virchow (fibroid tumors of the nerve), there was no pain throughout the course of the disease.

The nodules were not arranged along the tracts of nerves; were immovable, dense, and elastic; were fixed in the corium, and extended below it. They were purplish to pinkish in color; and the skin between them was unaltered, or like that enveloping the lesions, dry, uneven, and desquamative. The tubercles were both tender and painful, the pain being excruciating, paroxysmal, usually lasting in Duhring's patient for an hour, and radiating. It was aggravated by temperature changes, mental emotion, and movement.

Sections of the growth in Duhring's case showed anatomically a connective-tissue stroma, interwoven with fibres for the most part lying parallel with one another, each fibre composed of a finely granular central substance surrounded by a sheath containing numerous, elongated, oval, somewhat granular nuclei. There was also yellow elastic tissue, bloodvessels with thickened and nucleated

¹ Case of Painful Neuroma of the Skin, Amer. Journ. of the Med. Sciences, October, 1873; also Supplement to the same, with cuts, Amer. Journ. of the Med. Sciences, October, 1881.

² Arch. of Path. Anat., Bd. lxxx., Hft. 1.

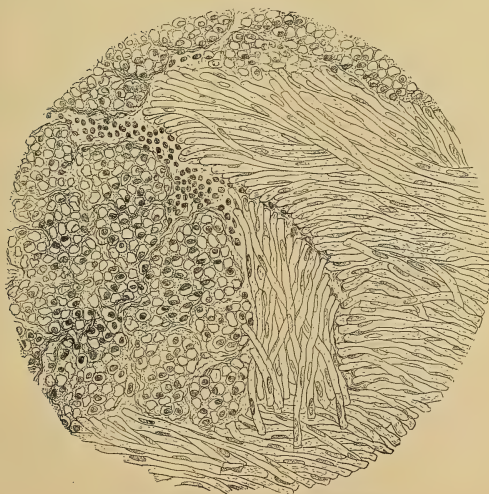
³ Centralblatt f. Chirurg., 1874, No. 16.

FIG. 56.



Neuroma of the skin ; external appearance. (DUHRING.)

FIG. 57.



Microscopic structure of neuroma. (DUHRING)

walls, and about the latter lymphoid, cell-like bodies. There was entire absence of unstriated muscular and fibrillar connective tissue. The specimen was certainly unique, representing the true amyelinic neuromata of Virchow. In Kosinski's case, non-medullated nerve fibres and connective tissue were also discovered. In both cases, excision of a portion of nerve (brachial plexus, of the one; and small sciatic, of the other) was followed by considerable diminution of pain, and almost entire disappearance of the growths. In Rump's case, which, as stated above, represented the fibromata and so-called fibro-nucleated tumors of Virchow, the nodules were strung upon the same nerve, "like beads upon a rosary," and were similarly displayed upon its branches. Spinal, cerebral, and sympathetic fibres were all involved.

Duhring, in commenting upon these interesting cases, calls attention to the distinction between these purely cutaneous lesions and the generally solitary, movable, and "painful subcutaneous tubercle."

Xanthoma.

Gr. *ξανθός*, yellow.

Xanthoma is a cutaneous neoplasm, exhibited in one or several, isolated or grouped, occasionally symmetrical, flat or slightly elevated, yellowish macules, papules, plaques, or tubercles, which are most commonly situated upon the eyelids.

This affection, also termed Xanthelasma and Vitiligoidea, was first described by Rayer,¹ and its clinical divisions established by Addison and Gull.

Symptoms.—The macular symptoms of the disease, are bean- to finger-sized plaques, either quite flat or with slightly elevated borders, often constituted by an aggregation of millet-seed-sized lesions, and covered with an apparently normal integument. In color they vary from light and chrome yellow to the "coffee and milk" shade; and in shape they may be punctiform, roundish, oval, elongated, or quite irregularly grouped. They are distinctly circumscribed, and when gathered between the thumb and finger do not produce the sensation of the presence of a foreign material. They are most often seen upon the eyelids near the inner canthus, where they may be symmetrically disposed about the two orbits. But they may invade also the periorbicular region, as also, rarely, the cheeks, the nose, the ears, and the nucha. They are rarely productive of subjective sensation, being occasionally the seat of slight pruritus. This is the commoner form of the disease, and is termed **XANTHOMA PLANUM**.

The tubercular lesions of the same affection, known as **XANTHOMA TUBERCULOSUM**, may coexist with the plane lesions described above, and scarcely differ from the latter save in their greater development. They are whitish or yellowish papules, plaques, and

¹ *Traité prat. des maladies de la Peau.* Paris, 1830.



F. B. INCLAIR & SON, LITH. PHILA.

Xanthoma of the Hands, Elbows, and Knees.
(From a Photograph of one of the author's patients.)
(to face p. 458.)



tubercles, circumscribed in contour, covered with an unaltered epidermis, and determinable by palpation as having greater consistence than the flat macules. They are less frequently seen upon the lids, but occur upon the scalp, cheeks, palmar and plantar surfaces, the genital region, and about the joints of the digits.

Other exaggerated forms are described. Thus sessile or pedunculated tumors, cutaneous or subcutaneous in their attachment, nut-to hen's egg in size, and originating in one or another of the lesions named above, are described by Cary¹ and Chambard.² To these the name *XANTHOMA TUBEROSUM* should be limited. *XANTHOMA MULTIPLEX* is the form in which the lesions, usually first manifested in the sites of election and in their simplest development, proceed to a gradual invasion of the trunk and extremities. Occasionally the mucous surfaces of the mouth, of the respiratory and gastro-intestinal tracts are involved, as also of the surfaces of the peritoneum, endocardium, and larger arteries. The genital region, palate, œsophagus, spleen, trachea, and cornea have all been recognized as seats of the disease.

The conglomerate forms upon the skin constitute large plaques resembling tumors, compounded of lesions of xanthoma tuberosum. They are distinctly circumscribed, deeply embedded in the corium, elevated to the extent of one-fourth to one-half of an inch above the general level of the integument, and irregularly furrowed or lobulated superficially. An illustration of xanthoma occurring in full development and in rare situations, is presented in Plate II., taken from a photograph of one of the author's cases.

In a proportion of cases, the disease is accompanied by a generalized coloration of the skin in a yellowish shade, which has been variously interpreted as a xanthomatous dyschromia, and as a true icterus. The former is the more probable explanation of the fact, as in such cases the urine and viscera have been found normal.

Korach³ has described the interesting case of a woman twenty-five years old suffering from chronic icterus produced by closure of the ductus choledochus. Beside the typical patches of xanthelasma on the lids, the skin surface was generally and similarly affected. Thus the extensor faces of the extremities, the palms of the hands, nates, and other parts were extensively covered with sago-grain to peppercorn sized papules and tubercles of xanthoma, both flat and elevated.

Etiology.—The causes of the disease are unknown. In many cases the lesions are first observed in early childhood, though they are encountered also in middle and later life.

In some cases the disease would seem to be inherited. Hutchinson and Church have reported several instances where more than one member of a single family suffered from the disease; and the mother of the patient exhibiting multiple lesions upon the elbows and knees selected by the author for illustration, presented plane lesions of xan-

¹ Ann. de Derm. et de Syph., 1880, p. 75.

² Archiv. de Phys. norm et path., Sept. and Dec., 1879.

³ Deutsch. med. Wochenschrift, No. 20, 1881.

thoma near the inner canthi of the eyes. The association of xanthoma with disease of the liver, diabetes, rheumatism, and other disorders cannot be denied for certain cases. In the majority, no such association can be recognized; and careful *post-mortem* examination of patients affected with xanthoma, and dead of intercurrent disease, has either demonstrated a normal condition of the liver or a disorder of it quite disconnected with xanthoma, such as a stricture of the bile-ducts from cicatricial contraction. In Mr. Malcolm Morris's cases, occurring in diabetic subjects, three women and one man, the eyelids were unaffected, and the partially xanthomatous lesions transitory in duration.

The author has reported a single case coming under his observation, where multiple plane lesions of the lid in a middle-aged woman succeeded a dermatitis of that region, induced by accidental contact with a corrosive solution of mercury.

Dr. Barlow¹ reports one congenital case of the disease.

Pathology.—Pathological studies of the affection have been made by Chambard, whose conclusions are briefly these: "The three forms, plane, tubercular, and tuberoso, are the results of two processes, irritative and retrogressive; the first prevalent in the tubercular and tuberoso forms, the last in the plane variety.

"In xanthoma planum, the irritative process is represented by an albuminous tumefaction of the connective-tissue elements, with proliferation of their nuclei; the retrogressive process, by a fatty degeneration of their protoplasm. In the other forms, the irritative process is distinguished by the new formation of connective tissue; the retrogressive by a fatty infiltration of the old and newly formed connective-tissue elements. In both forms, not only the connective tissue of the derma, but also the vascular, glandular, and nervous organs, within and about the sclerosed nodules, are invaded. The sclerotic process involves also the fibrous envelope of the sebaceous and sudoriparous glands (*periadenitis*); the internal and external sheaths of the vessels (*periarteritis*, *endarteritis obliterans*); and the lamellar sheath and intrafascicular connective tissue of the nerves (*perineuritis*, *endoneuritis*). The nervous involvement is thought to explain not only the pain, but also the tenderness peculiar to the xanthelasmic tubercles."

Balzer's conclusions as to the parasitic nature of the disease have not been verified by Hanot and Eichoff.²

In the careful and exhaustive paper by Dr. Karl Touton³ it is clearly shown that the disease is due to an atypical new formation of cells seated in the corium. These have a sharply defined membrane; and a large, roundish, or ovalish nucleus. All parts are thickly studded with fat drops, and it is from these that the yellow coloring of the xanthoma plaques is derived. They originate in and near the lymph spaces and conduits of the derma; and in the building up of

¹ Path. Soc. of London, 1884.

² Viertelst. f. Derm. u. Syph., Hft. 1, 1885, p. 3.

³ Deutsch. med. Woch., No. 4, 1884.

the lesions are associated chiefly with connective and yellow elastic tissue. The sebaceous glands are not, as was once held by Hebra, Geber, and Simon, concerned in the process. The epidermis superimposed upon the lesions may be thinned, but is otherwise pathologically unaltered.

Diagnosis.—Milia are occasionally associated upon the lids in the form of oval plaques, but are distinguishable from xanthoma by the possibility of expressing their contents.

The diagnosis from all other lesions is readily made, when consideration is had of the peculiar yellowish or saffron-like hue of xanthoma, and the common situation, form, and general characteristics of its plane or nodular lesions.

Treatment.—Erasion and excision are the usual methods of removing xanthomata. Care should be taken in such operations to avoid a consequent ectropion when the operation is performed upon the skin of the eyelids. The Paquelin knife, which I have employed for this purpose, is objectionable on account of the radiation of the heat to the globe of the eye. With the tumor slipped through an aperture in a thin sheet of asbestos paper, such as is now found in the markets, this inconvenience might be avoided.

The more modern method, however, of electrolysis is far preferable to others. Caustics also have been successfully employed. Besnier employs phosphorus internally followed by turpentine, by which course the disease is said to have been relieved. Wilson, with the same end in view, employed nitro-muriatic acid, arsenic, bitters, and blue pill.

Prognosis.—The lesions, when not removed, are liable to persist through life. Spontaneous involution is said to occur very rarely. The French authors, who have given considerable attention to this subject, are disposed to believe that some cases of xanthoma tuberosum, with permanent xanthochromia and involvement of the inner coats of the larger vessels, may prove serious.

Adenoma.

Gr. *αδην*, a gland.

Adenoma is a new growth in which there is proliferation of the glandular cells and their investing connective tissue, which constitute normally a secreting organ of the skin.

Authors are not generally agreed as to what growths shall and what shall not be considered exclusively as adenomata. Geber includes under this title adenoma sebaceum, adenoma sudoriferum, and epithelioma molluscum. Anderson, on the other hand, gives no consideration to the subject, and other authors relegate it to a paragraph. This is unquestionably due to the fact that, apart from the lesions described in this work as molluscum epitheliale, a number of the growths assigned to this class are epitheliomatous.

¹ Deutsch. med. Wochens. No. 23, 1881.

² Loc. cit.

Yet there is no question that true adenomata of unmixed type originate from both sebaceous and coil-glands.

Certain whitish or yellowish, pin-head-sized, rounded and isolated lesions, with gelatinous contents, scattered over the faces of persons in middle life and advanced years, are occasionally seen either flattened or slightly elevated above the level of the integument. They have been described under the title of "colloid degenerations of the skin," but are probably instances of adenoma of small acini of the sebaceous glands, the epithelium of which has undergone colloid degeneration. According to Heitzmann, the distinguishing feature of them all is a wreath of cuboidal or short columnar epithelium, inclosing a distinct cavity. Besnier,¹ however, concludes that the connective-tissue elements of the derma are primarily involved in the colloid degeneration, and the glandular epithelia secondarily.

In general, the features of adenoma are well defined, circumscribed tumors, pin-head to small-egg sized and larger, sessile or pedunculated, softish or quite firm, and always occurring in regions where there are either coil-glands or sebaceous glands. For a time, after the formation of such a tumor, the gland or glands from which it is proliferated may discharge the usual function. The course of the tumor may be stationary; it may atrophy; it may degenerate by an ulcerative process; cysts may form; or the contracted cells undergo hyaline, colloid, or fatty degeneration.

Sections of simple adenomatous tumors always exhibit the epithelium of the glandular structure from which the new growth was derived, and the connective tissue framework of tumors in general.

The diagnosis is from epithelioma, molluscum epitheliale, steatoma, and lipoma, for the exact determination of which examinations of sections with the microscope are needful.

The treatment, when any is required, is surgical; and the prognosis, in uncomplicated adenoma, favorable.

2. Of Muscular Tissue.

Myoma.

Gr. *μύων*, muscle.

Myoma is a tumor of the skin which is composed in great part of muscular fibres.

Tumors of the skin composed of smooth muscular fibres are known as MYOMATA, LEIOMYOMATA, or LYOMYOMATA. But little attention had been attracted to these new growths up to a recent date. Jullien,² however, in a review of the contribution to the subject made by Messrs. Brigidi and Marcacci, of Florence, and

¹ Ann. de Derm. et de Syph., t. x., Nov. 5 and 6, 1879.

² Ibid., t. iii. 2me sér., Feb. 25, 1882.

published by them in the *Imparziale*, in 1881, gives a full capitulation of the bibliography of the subject.¹

From these reported cases, it appears that the tumors originate as usually single, though occasionally multiple, elevated, disseminated, small pin-head to orange-sized, macular or tubercular lesions, the skin covering which is smooth, stretched, and glistening, with a rosy or dark reddish tint, paling or not under pressure. The developed lesions may be sessile or pedunculated, and either intensely painful, pruritic, or remarkably sensitive to cold. Under the influence of muscular contractions, there may be, as in the cases of Challand and Axel-Key, slow vermicular motion and frequent changes of volume, or other evidences of contractility. They occur either as generalized lesions, or limited to the thorax, scrotum, mammæ, labia majora, and the hands and feet, including the palmar and plantar surfaces. The ages of the patients varied from the twenty-fifth to the sixty-fifth year of life. Of thirteen persons whose sex was given, five were males and eight females.

Pathologically, these cases were reported as either pure myomata, or highly vascular types of MYOMA TELANGIECTODES and FIBROMYOMA. Verneuil's case resembled a neuroma, as it contained not only smooth and striated muscular elements and bloodvessels, but also nerves. The case of Axel-Key is recorded as one of LYMPH-ANGIECTASIC FIBRO-MYOMA.

The disease is a benign new growth, and is not to be confounded with prurigo, lepra, syphilitic gumma, neuroma, sarcoma, or fibroma.

Babes, more lately, divides these growths into (a) those derived from the smooth muscle-fibres of the vessel-wall; (b) those derived from the cutaneous muscular network.

The first (angiomyomata) are combinations of new growths of vessels with muscle-fibres derived from the vascular parietes. The second (dartric myomata) are seen especially about the scrotum, labia, and mammæ. The deep muscular apparatus of the region named (dartos, etc.) contributes in these cases the muscular elements of the tumor. In still other cases muscular tumors occur when no such tissue normally exists. In these cases a deep aponeurosis or subcutaneous muscle furnishes the basis of the neoplasm.

In a case treated by the author, multiple pin-head to large bean-sized congenital tumors were situated near the sterno-cleido-mastoid muscle of a girl nineteen years old. These were exquisitely sensitive to pressure, were capable of slight vermiform motion when irritated, and examination of the largest, after removal, exhibited smooth muscular fibres, and, in small proportion, terminal filaments of cutaneous nerves.

The course of the disease is slow, lasting as it may for several

¹ 1854, Virchow; 1858, Forster, Verneuil; 1864, Klob, two observations; 1871, Challand, two observations; 1873, Marciano Sokuloff; 1878, Axel-Key, Santesson; 1880, Besnier; 1881, Arnozan and Vailard; Brigidi and Maracchi.

decades. The etiology is unknown. Treatment is by enucleation ; or removal by ligature, electrolysis, or incision.

3. Of Vessels.

Angioma.

Gr. ἀγγεῖον, vessel.

Angioma is that pathological development which is constituted wholly or in part of dilated or new-formed blood- or lymph-vessels.

The angiomata are naturally divided into those composed of blood-vessels and those formed of lymphatic vessels. The former are much more frequent and variable in character.

Blood-vascular new-growths occur in three forms : *nævus vasculosus*, *telangiectasis*, and *angioma cavernosum*.

Nævus Vasculosus.

This term is limited to those vascular anomalies of the skin which are either visible at birth or become developed in a brief period thereafter. They commonly occur as irregularly outlined or distinctly circumscribed, smooth spots, patches, or maculations, varying in color from light red to deep violet and port-wine, either flat or very slightly elevated above the general level of the integument. From this type wide variations are noted, from the development of pea-sized papules or tubercles, to tumors even of large size ; pulsating and aneurismal in character ; spongy or relatively firm ; fading or more rarely persistent under pressure ; superficial or deeply seated ; venous or arterial in their connections ; single or numerous ; and in either case limited to a small area or involving a relatively large surface. They are of most common occurrence upon the head, but are seen also on the trunk and extremities. Often they are the sole lesions of the skin present in a single individual ; in other rarer cases they complicate moles, warts, and lymphangiomata.

The surface of these lesions is usually smooth, though it may be rugous. They are always compressible, losing their habitual color when the blood is forcibly pressed out from the loose mesh-work of vessels of which they are composed, and becoming turgid and deeply tinted when the blood is forcibly driven into their tissue, as in the act of sneezing.

The course of these lesions varies with their essential character. Of the simpler varieties, the larger number increase somewhat in extent and development till they have attained a maximum size, and then either persist indefinitely or accomplish a species of involution after agglutination of the vascular walls, leaving a whitish, cicatrical, occasionally pigmented surface. Others extend indefinitely, involving the neighboring mucous surfaces, subcutaneous tissue, and deeper structures, forming vast tumors, destructive not only by their

tendency to extension, but by their mechanical effects. Fortunately, these extreme developments are rare. Much more commonly they are observed in the forms known as the "port-wine mark" or "claret-stain," which awaken no subjective sensations, and are usually of clinical importance in consequence of the marked disfigurement which they occasion.

Occasionally, especially in the case of infants but a few days old, phagedena or gangrene will suddenly occur in these patches without appreciable cause (probably in consequence of the occurrence of thrombus), and the entire tumor will be removed, the line of demarcation of the destructive process being exactly limited to the outline of the angiomatous tissue. The scar resulting is superficial, and becomes smoother in course of time. In this way the author has seen spontaneous cure of *nævi* of considerable size existing on the head and genitalia of infants.

Telangiectasis.

Telangiectases are acquired blood-vascular new formations, which appear at periods of life other than at birth or a few months later; and are, therefore, distinct from the congenital forms of the disease. They are commonly first observed in adult life, and occasionally multiply with advancing years. They occur in diffuse and localized forms.

Diffuse, generalized telangiectasis is exceedingly rare. Hillairet and Vidal have each observed one such case in individuals of both sexes; the condition being apparently due to systemic disturbance.

The localized forms are betrayed by the occurrence of flat or slightly elevated, pin-head to pea-sized maculæ; diffuse patches; linear ramifications of individual vessels; or contorted congeries of a plexus of the latter, all exhibiting the variations in color of *nævi vasculosi*, but usually of pinkish or violaceous hue. They are unaccompanied by subjective sensations, are evidently non-inflammatory in character, and are seen as single or multiple lesions chiefly upon the face, but also upon the neck, the backs of the hands, the thighs, and other parts of the body. They are not rarely observed in connection with other diseases. Thus they occur in the vicinity of the lesions of *lupus erythematosus*, *morphœa*, *acne rosacea*, *cicatrices*, and about the contour, or over the surface of many malignant tumors. They may therefore have either an idiopathic or symptomatic character.

The term *ROSACEA*, as distinguished from *acne rosacea*, is employed to designate that condition in which the skin, of the face particularly, exhibits a circumscribed or diffuse redness, due to dilatation of the capillaries, unassociated with *acne* or other sebaceous gland disorder.

The conditions here described as *nævus vasculosus* and telangiectasis are displayed in forms which, apart from the question of congenital origin, offer the widest difference and the most bizarre combinations. The so-called *nævus flammeus*, *nævus araneus* (spider

cancer), *nævus vinosus*, "mulberry," "strawberry," and "mother's marks" are all examples of these combinations.

The lesions are often congenital. There is not sufficient proof that they are due to ante-natal maternal impressions. The influence of the nervous system in deciding the area of limitation of the congenital forms is exceedingly distinct, as, for example, the limitation of a port wine mark to the skin area supplied by one supraorbital nerve.

Pathology.—Billroth states that the new formation has its origin in the vascular network surrounding in basket-like forms the fat lobules, follicles, and glands of the skin. Embryonal, vascular growths spring from these and as they multiply and develop are enforced by proliferation of fibrous, connective, and muscular tissue. The color depends largely upon the preponderance of arterial or of venous capillaries in the new formation.

Diagnosis.—The ordinary lesions of angioma are readily recognized by their color, size, shape, and obvious vascular constituents. Anderson calls attention to the importance of recognizing encephalocele due to the failure of ossification of the ethmoid and frontal bones at the root of the nose. Operations upon such tumors, when supposed to be angiomatous in character have resulted fatally. Lobulation, great distention (when a child is crying), a superficial rather than deep and complete vascularization of the smooth and glossy skin of the tumor, and a double pulsation in it, all point to frontal encephalocele.

Treatment.—The treatment of all forms of angioma is described in detail in the chapter on angioma cavernosum. The best method is decidedly that by electrolysis when it is practicable. Then may be named excision; amputation; injection of pure carbolic acid, tannic acid, or the perchloride of iron; ligature of vessels; ligation of tumors producing strangulation; the actual cautery; the galvanic *écraseur*; the use of the seton; and the application of such caustics as the ethylate of sodium. Squire's method of multiple puncture and scarification has at times failed in the author's hands to accomplish the desired end.

Angioma Pigmentosum et Atrophicum.

This disorder has been also termed *Xeroderma Pigmentosum*; *Dermatosis Kaposi*; *Melanosis Lenticularis Progressiva*; and *Liodermia cum Melanosi et Telangiectasia*.

But a few cases, less than forty all told, have been recorded; and these by Kaposi, Glax, Crocker, Vidal, Pick, Neisser, and Geber, abroad; and, in this country by Taylor, of New York, in an interesting series of seven cases; by Duhring, of Philadelphia; and by White, of Boston. The disease results ultimately in a diffuse idiopathic cutaneous atrophy, but this condition is preceded by a general hyperæmia with vascular dilatation; the production of numerous, punctiform, bright red, pin's-head to pea-sized, flat, or raised telangiectases; and disseminated, brownish, and yellowish-brown maculæ,

varying in extent; between which form superficial, whitish, and glossy, atrophic depressions, like the cicatrices of variola. The melanosis is at times so uniform and diffuse as to suggest the dark tints of the Spanish skin, as in Prof. White's case, with a dense spattering of a still darker hue and a blackish scrotum. The atrophic or leucodermic condition of the skin may coexist with the melanoderma, and present large well-defined areas totally devoid of pigment where the skin may have a pinkish tint. The ears may thus come to resemble tanned sheep-skin. Prof. White in the case under his observation could trace no transformation from a pigment macule into a telangiectasic lesion. The skin soon becomes furrowed, contracted, and as dry as parchment; and thus is readily developed an eczema or a superficial degeneration, including ulceration. A species of furfuraceous desquamation also occurs in patches. The faces of most patients exhibit a peculiar checkered appearance, from the uniform dissemination over the skin of the pigmented maculæ. Ectropion, with ulcerative keratitis, epitheliomatous, sarco-carcinomatous and angio-myxomatous growths complicated several of the cases reported; and in two, certainly, were the immediate causes of a fatal issue. Often, however, the general health seems, for long periods of time, to remain unimpaired, the subjective sensations being slight. Observers of these cases differ somewhat as to the order in which the several lesions of the disease appear; and Duhring thinks it possible that no definite order is observed in the evolution of the symptoms. Both sexes in early life seem equally predisposed to this disease though the large number of members of single families affected with its symptoms indicates the importance of predisposition and heredity in point of etiology. It is usually first manifested before the third year of life.

It is known that the disease may endure for thirty years. Its etiology, pathology, and appropriate treatment are not as yet determined.

Angioma Cavernosum.

This is also termed Tumor Cavernosus. It is distinguished from the other angiomatous lesions described above by the peculiarities of its formation. It consists of a dense framework of new-formed connective tissue, inclosing loculi or chambers of varying capacity, containing blood, and communicating not only with each other, but with the larger vessels in the vicinity. Whether they originate in the fibrous felt-work of the derma, which later establishes a vascular connection, or in the vessels themselves, or are constituted by a mechanical dilatation of the latter, in consequence of new-formed connective tissue in the adventitia, has not been determined. According to Virchow, they arise generally from coalescence and dilatation of vessels. Other causes are explained by the earlier formation of a contracted cicatricial tissue by which vascular distortion occurs. (Rindfleisch.)

They are said to be rarely congenital, developing soon after birth,

and to be both superficial, deep, circumscribed, and diffuse. Sometimes they originate from a naevus or superficial telangiectasis. Often when fully formed, they are distinctly encapsulated. The diagnosis is between cysts, fibromata, lipomata, and sarcomata. Their rarity in dermatological practice may be explained by the surgical features of many cases. In five years, no instance of angioma cavernosum was reported in the statistical tables of the American Dermatological Association.

Etiology and Pathology.—The causes of the several forms of angioma, named above, are obscure. The symptomatic telangiectases are undoubtedly to be explained by obstruction to the circulation occasioned by the tumor or other lesions to which they are accessory. The foundation for the vulgar belief that maternal impressions are responsible for the so-called "mother's marks" is very slight. The reputed resemblance of the latter to various flowers and fruits generally requires for its recognition a stretch of the imagination.

Anatomically, these lesions are recognized as due to dilatation and formation of venous and arterial capillaries in the superior portions of the derma, the vessels of the newly formed plexus freely communicating with each other. Generally there is a simultaneous new formation of connective tissue constituting the framework of the growth, which varies considerably in the different forms of the disease. Lobules constituted of coils of capillary vessels are often separated by it into distinct masses. According to Heitzmann, the large spaces of angioma cavernosum imitate the structure of the corpora cavernosa of the penis, and are filled with venous blood, being separated from each other by a scanty fibrous connective tissue.

Treatment.—The treatment of this group of new growths is, in general, limited to a series of local surgical procedures. These all have in view either the destruction of the new growth, or the artificial production of an inflammation, in order to obliterate the lumen of the capillaries of which it is composed, to an extent sufficient to interfere with the transmission of the blood-current.

First among these is electrolysis. One or a set of several fine cambric needles, with their points at the same plane, are connected with the negative pole of an ordinary zinc and carbon battery of ten to twelve cells. The points of the needles are quickly passed into the tissues, and there held for a period of between ten to thirty seconds, according to the effect produced after completion of the circuit. The new growth is thus blanched in the vicinity of the needles, this effect disappearing in the course of a few moments. In about three weeks, the curative result of the operation becomes apparent. According to Fox,¹ of New York, the objections are that the operation is sometimes painful and tedious, and may occasionally result in the production of suppuration, superficial sloughs, minute, keloid-like elevations, vascular nodules, depressed scars, or superficial ulcers. The author has operated in scores of cases without the pro-

¹ New York Med. Rec., Feb., 1882, p. 188.

duction of any results worse than the original disfigurement, often with complete success.

The method of Sherwell¹ is by multiple puncture with a set of fine needles in a holder similar to that described above. These are dipped in a twenty-five to fifty per cent. solution of chromic acid, and then made to penetrate the part to be attacked. The bleeding is readily arrested by pressure, and then the patch is to be covered with several superimposed layers of flexible collodion. This procedure is of value in circumscribed patches of superficial character and relatively limited area. By it, the author has succeeded in removing port-wine marks in three patients, with the result of producing a somewhat irregular cicatriform tissue much less disfiguring than the original blemish. One of these patients was repeatedly exhibited at the clinic during the progress of the case.

Squire's operation is done upon previously frozen patches by the aid of an instrument which destroys the vessels by making numerous crossed and closely spaced linear incisions, parallel to each other and in a plane obliquely directed to that of the integument. Here also bleeding is arrested by pressure, exerted before the circulation is restored. The operation has been, in hands other than his own, attended at times with unsatisfactory results.

Sodium ethylate, a compound in which the radical ethyl in ethylic alcohol is united with sodium, is a caustic recommended by Richardson² in the treatment of nævus. It is applied by means of a glass rod. A first application usually results in the formation of a dense crust under which the nævus contracts, and repeated applications are made at intervals of a few days till the desired result is obtained. The sodium ethylate should be pure, and the crusts should not be disturbed till they fall spontaneously. In one case observed by the author, there was a persistent redness of the resulting scar which was decidedly open to objection.

Other methods employed are the ligature when practicable; puncture with hot needles; the topical application of caustics other than those named above, such as hydrate of potassium, nitric and carbolic acids, and corrosive sublimate; and total excision, the latter being practicable in relatively small growths. The galvano-cautery and the thermo-cautery are both valuable in the destruction of the capillaries, and have repeatedly proved successful in my hands. For telangiectases and nævi no larger than a pea, the Paquelin knife is an efficient resort. The old method of multiple vaccination about and upon the involved area is frequently followed by the best of results, and whether in consequence of the retraction of tissue under the influence of the inflammation excited, or of the destructive results of the suppuration induced, or of an indefinite caustic effect, is not, as Kaposi suggests, quite clear.

These results may be partly imitated by the induction of superficial pustulation and suppuration through the medium of tartar emetic and croton oil, methods which certainly should be considered

¹ Archives of Derm., Oct. 1879.

² Lancet, November 9, 1878

clumsy in the light of recent successes, obtained by more manageable expedients.

Injections with carbolic acid and the perchloride of iron, though in very few cases followed by fatal results, are often brilliantly successful.

Coombs¹ has lately modified somewhat the method most in vogue, by passing fine silver wires through naevous growths, and connecting the extremities with a Bunsen's battery. When the wires are heated, the circuit is broken, and the ends of the wires disconnected from the battery and united to each other, being then left *in situ* and covered with lint and plaster. The current can then be passed repeatedly without reinsertion of the needles, and the latter need be withdrawn only when the cure is complete.

The treatment of angioma cavernosum manifestly requires surgical interference.

The prognosis in any case of angioma will evidently rest upon the method of treatment adopted for its removal. In the larger number of cases, the lesions having attained a maximum development, persist without further pathological change, constituting a deformity rather than a disease. Physiological alterations in the color of such lesions occur under the influence of changes in the circulation.

Lymphangioma.

Lymphangioma of the skin is an ectasia or new growth of lymphatic vessels of the corium, spontaneous or traumatic in origin, producing usually cysts containing lymph.

New growths of lymphatic vessels in the skin have been noted as constituting a cutaneous disease proper, by Hebra and Kaposi, Pospelow,² Van Harlingen,³ and a few other writers. By the authors first named, the disease is termed LYMPHANGIOMA TUBEROSUM MULTIPLEX. The lesions in these several cases were multiple, pea- to bean-sized, smooth, roundish, reddish, lilac-tinted or bluish, firm or compressible tubercles, implanted in the skin, and occurring first in early life, about the neck and trunk. Some of these were quite reducible under pressure, and transparent. In Van Harlingen's case, the lesions were destitute of fluid contents, and also interspersed between telangiectases. Anatomically, roundish or oval spaces appeared in sections, recognizable as distended lymphatic vessels by the characteristic endothelium with which they were lined. Kaposi distinguishes these tubercles from all subcutaneous cavernous tumors constituted of new-formed dilated lymphatic vessels reaching toward the skin, by the limitation in the former of the neoplastic growth to the superior parts of the corium.

In comparing these with the large number of cases of congenital

¹ London Lancet, 1881.

² Viertelj. f. Derm. u. Syph., Hft. 4, 1879.

³ Paper read before the Amer. Dermat. Association, September, 1881. Phila. Med. Times, September 24, 1881.

and acquired dilatation of the lymph channels, collated in the valuable monographs on these subjects by Dr. S. C. Busey,¹ of Washington, D. C., a further special difference between the two becomes apparent. In the latter, when the lymph-filled vesicle, papule, or tubercle, which appears upon the integument is ruptured, there at once supervenes an exhausting drain from the body, of pure, coagulable lymph, a feature which is not described by the dermatological authors named, as of occurrence in their cases.

Most of the diffuse forms of lymphangioma, those of the class last described, constitute firm or lax tumors of such size as to be termed Elephantiasis Lymphangiectatica or Pachydermia Lymphangiectatica. These contain often large lymph-filled sacs or lacunæ, enveloped in hypertrophied muscular and connective tissue, and an œdematous integument. Some of the elephantiasic deformities of this character are fully as enormous as the extreme distortions of elephantiasis proper.

Lymphadenectasia is a name given by Virchow to tumors usually in the axillary or inguinal regions where the lymphatic vessels in the lymphatic glands dilate or multiply so as to form large tumors. The lymph-scrutum due to the presence of the *filaria sanguinis hominis* is elsewhere described.

Lymphangiomata may be congenital or appear soon after birth. Their cause is unknown. Anatomically the lesions are found to consist of greatly developed lymphatic vessels, lined with endothelium and enveloped in small-celled connective-tissue stroma. The treatment, of the larger lesions only, is surgical.

4.

Rhinoscleroma.

Gr. *ῥίς*, or *ῥίν*, the nose; and *σκληρός*, hard.

Rhinoscleroma is an infectious granuloma affecting the skin and mucous membranes of the nose and contiguous parts, characterized by the formation of exceedingly dense, elastic, and painful, flattened or elevated plaques, nodules, or tubercles, which may be isolated or confluent.

Symptoms.—A knowledge of this rare disease, first described by Hebra and Kaposi in 1870,² has been obtained solely from a study of some forty cases chiefly observed by these authors. The following is a concise statement of their description of the malady:

The disease commonly begins in the septum or a single ala of the nose without inflammatory symptoms. The involved parts slowly enlarge, and become finally as dense as ivory. The individual lesions

¹ Congenital Occlusion and Dilatation of the Lymph Channels (Amer. Journal of Obstetrics, January, 1877, *et seq.*); Narrowing, Occlusion, and Dilatation of Lymph Channels, Acquired Forms (New Orleans Medical and Surgical Journal, No. 3, 1876, to No. 8, 1878, inclusive). See, *e. g.*, history of Berkley Hill's patient, p. 101; of Zambuco's, p. 120; of Carter's, p. 103; of Cholmley's, p. 136; of Jackson's, p. 173, and many others.

² Wien. med. Woch., No. 1, 1870.

are flat patches, or elevated and circumscribed nodules, papules, and tubercles, painful upon pressure, movable to a certain extent over underlying tissues, and covered either by a normal integument, or a light or dark red, shining, vascular epidermis. Neither hairs nor glands are discernible over the lesions. As the disease progresses, the alæ become enlarged, flattened, and so indurated that they cannot be pressed together, while respiration may be impeded by stenosis of the nares. The process may extend to the neighboring parts, involving thus the upper lip, gums, velum, epiglottis, and larynx, the teeth meanwhile falling from their sockets and the soft palate becoming in some cases perforated. Involution of the process has not been observed, as the lesions do not degenerate by ulceration. Max Zeissl,¹ however, reports a single case in which there had been ulcerative destruction of the entire left nostril, as well as the tip and right ala of the nose. Occasionally superficial excoriations have occurred, but very rarely a diminution in the consistency of the mass. The disease is exceedingly chronic, requiring years for its development; and though the affected parts are painful on pressure, they are otherwise not the seat of subjective sensation.

Etiology and Pathology.—The disease is observed between the fifteenth and fortieth years in persons of all social conditions and individuals of both sexes, free from syphilitic, strumous, tubercular, and other cachexiæ.

Kaposi originally observed, as anatomical lesions of the disease, a dense infiltration of the corium, and its papillary layer, with small, closely packed elements, which he recognized as a true new-formation. He considered this as analogous to the small-celled sarcoma, inasmuch as Mikulicz, Geber, and Billroth have seen some of the elements of the neoplasm transformed into osseous formations sufficiently common in sarcomatous tumors.

More lately, however, A. v. Frisch, after examining tissue removed from lesions of rhinoscleroma in twelve patients, found in the cells and between them in the interpapillary fissures of the connective tissue, bacteria distinctly rod-shaped, one and one-half times longer than they were broad. These germs were successfully cultivated, but experimental inoculations with culture fluids thus obtained were negative in results. Neisser in a single case found no bacteria; nor did Davis have better success in studying sections removed from his patient, the first reported as occurring in Egypt.²

Dreschfeld,³ however, found in sections of tissue obtained from Payne's patient numerous bacilli less slender and smaller than those occurring in tuberculosis with slightly thickened extremities. These were unlike those exhibited by Paltauf, at the Berlin Congress, who regarded them as similar to if not identical with Friedländer's pneumococcus. Barduzzi, Pellizari, and others have added to the evidence in favor of the parasitic nature of the disease.

¹ Wien. med. Woch., 1880, p. 621.

² Brit. Med. Journ., May 29, 1886.

³ Brit. Med. Journ., October 24, 1885.

Diagnosis.—The disease can hardly be mistaken for another in consequence of its situation, the disfigurement it occasions, the ivory-like elasticity and induration of the affected parts, and the rarity of ulcerative degeneration. As distinguished from syphilis, it is known to be entirely unaffected by specific medication. From the variety of acne rosacea of the nose, known as rhinophyma, it is readily differentiated by the softness and compressibility of the latter, and its evident vascular and glandular composition.

The ulcerations of epithelioma have a more circular outline, a more elevated edge, and occur in persons of a more advanced age. Keloid, if found in the situation of rhinoscleroma, does not ulcerate.

Treatment.—The method of relief thus far employed is a total or partial extirpation of the neoplasm. Kaposi speaks of dilatation of the nares by means of laminaria and compressed sponge, where there is actual or threatened nasal occlusion. Both excision by the knife and destruction by caustics have, however, been found to secure merely temporary benefit, as the growth is reproduced with some rapidity.

Prognosis.—The future of the patient is grave. The disease not only persists and recurs after operative interference, but may endanger life by obstruction of the nostrils. Zeissl's case¹ proved fatal in ten years after the disease first appeared.

Lupus Erythematosus.

Lat. lupus, a wolf.

Lupus Erythematosus is a cutaneous new growth, displayed to the view in well-defined, slightly raised, discoid patches, often with a depressed or atrophied centre, colored in various shades of hyperæmia, covered with adherent, yellowish-gray scales, and terminating, after a favorable involution, by the production of a persistent scar.

This disease was first described by Bielt under the title *Erythème Centrifuge*. Hebra, in 1845, described it among the seborrhœas as *Seborrhœa Congestiva*. Its present title was given by Cazenave in 1850. It is also termed *Lupus Erythematosodes*, *Lupus Sebaceus*, *Lupus Superficialis*, and “*Scrofulous Ringworm*.”

Symptoms.—The disease is first exhibited in one or several rape-seed to bean-sized, reddish maculæ, slightly elevated from the surface, and covered with a peculiar glistening epidermis, or with an adherent scale.

When but a single patch is formed, the primary lesion described above enlarges its periphery, in the course of months or years, by a slowly continuous development. Its reddish outer rim is then distinctly elevated, while its centre is depressed, showing either adherent, yellowish-gray scales, or a glistening appearance of the unbroken epidermis. It may thus attain the size of a small coin or a large saucer, and occur in this form symmetrically or asymmetrically about the cheeks, nose, eyelids, forehead, ears, scalp, mouth,

¹ Wien. med. Woch., 1880, p. 621.

hands, and feet. The disks or patches are very well defined in outline, and of a color varying with the complexion of the patient, from a rosy-pinkish to a deep purplish hue. The shape is usually circular, oval, or in figures representing combinations of these outlines. The scales, too, vary in color, being at times of a clear white or whitish-yellow, and again, often from concurrence of comedones, of a leaden or brownish tint. The latter are usually scanty and adherent, but are also, rarely, abundant. They can be occasionally seen firmly fastened to the orifice of the excretory duct of a sebaceous gland. When such a patch spreads symmetrically over the brow and cheeks, its figure has been likened by Hebra to the open wings of a butterfly. The disease is never accompanied by the occurrence of other cutaneous

FIG. 58.



Lupus erythematosus of the face (from a photograph of one of the author's patients).

lesions; nor is it ever displayed in symptoms of moisture and discharge.

When the maculæ originate as multiple lesions, the evolution of the disease may be accomplished by increase in the number of the former, rather than, as just described, by the peripheral extension of a single patch. The disease is then apt to be manifested, not only in the regions named above, but over the trunk and extremities, where it is likely to assume atypical forms, and be complicated by accesses of a febrile or neuralgic character, and by various cutaneous accidents, such as erysipelas, dermatitis, etc.

The disease is remarkably chronic in its course, lasting in cases for a quarter of a century, and throughout not interfering with the general health. So-called "galloping" cases are described by French writers, where visceral complications were the causes of a fatal result. The disease varies in the subjective sensations it produces; being at times accompanied by excessive itching, and often by no discomfort. It is much more common in women than in men, and is a disease of adult years. Kaposi reports a single case in one child three years of age.

The scars left by the affection are indelible and characteristic. They are generally uniform and superficial; can be readily pinched up between the thumb and finger; are of a dull, whitish tint, and rendered punctate in a peculiar manner, suggesting the action of the engraver's tool in what is known as the "stippling" process. They are never pigmented, puckered, radiate, stellate, corded, or deeply attached.

According to some authors there are two varieties of erythematous lupus, the first, the so-called discoid form, described above; second, a disseminate form. In the latter, graver in type, the disease begins with numerous efflorescences of the character already described which multiply without marked enlargement of any single disk until very extensive surfaces are involved including the trunk, extremities, and, in generalized forms, almost the entire body. There is often coincident fever or erysipelatous complication, and the result may be a typhoid condition with fatal result. These cases are not known in America and Great Britain. Boeck has described two cases of this sort observed in Norway.

Lupus erythematosus of the hands, observed rarely in France and Germany, more often decidedly in England and America, occurs not only in the generalized forms referred to above when large areas of the body are involved, the hands included; but also when the lesions are exclusively manual in situation. These cases have been described by Hutchinson, Sir Erasmus Wilson, and others, including the author.¹ The lesions are not to be mistaken for chilblains on the hands. Very rarely they are seated upon the glans penis.

Etiology.—The causes of lupus erythematosus are unknown. Much has been said and written to prove that the disease is of scrofulous origin, but inasmuch as an immense number of scrofulous patients in all parts of the world never exhibit traces of the disease, it is needless to say that the proof has not been obtained. In by far the larger number of patients actually displaying characteristic disks of erythematous lupus, the usual concomitants of scrofuloderma (which see) are actually wanting. In many patients, the most careful investigation fails to discover any other evidence of ill health. Yet inasmuch as many young women, after the puberal epoch, suffer from the chlorosis, anæmia, and menstrual irregularities common to their sex and age, these conditions may concur. As for tuberculosis,

¹ See his résumé of these cases in the Journ. of Cutan. and Vener. Dis., Nov. 1884.

adenopathy, and malnutrition, cases of erythematous lupus occur in subjects affected with such symptoms to an extent which may possibly be the result of coincidence. Considering the remarkable rarity of the disease, and the no less significant frequency of seborrhœa, the wonder is not that they should occasionally concur, or be transformed, the latter into the former, but that such phenomena are not more conspicuously and frequently noted.

The disease is more common in women than in men, usually appearing first in the third decade of life, in this particular presenting a contrast with lupus vulgaris.

It is reported to have followed acne, seborrhœa, variola, erysipelas, vesication with cantharides, and the traumatism of leech-bites. The author has seen it in one case appear when the curette had been employed in a patient with a characteristic patch elsewhere on the face.

Pathology.—The disease-process originates either in the periglandular tissues of the sebaceous or sudoriparous follicles and their ducts, or in some part of the panniculus adiposus; in other words, from any point in the superficial or deep strata of the cutaneous or subcutaneous structure. Under the microscope, the elements of both the epithelia lining the glands and of the connective tissue without are seen to be multiplied and largely commingled with the ordinary products of an inflammatory process.

Thin¹ found enormous distention of the capillaries in the papillæ, their loops of venules being choked with red blood-disks, and in this state almost completely occupying the digitation. The same was observed in the perifollicular plexuses, while yet the rete and glands were quite unaffected. Such alterations would, without question, ultimately follow as the result of the vascular trouble; but the observations are of interest as lending color to the supposition that the primary changes in lupus erythematosus are chiefly vascular. Similar vascular dilatations, papillary and perifollicular, have been noted by Kaposi and others as concurrent with structural alterations in other portions and appendages of the skin.

In consequence of the new growth thus formed, there are moderate elevation of the initial macule of the eruption and a thickened rim to its centrifugally developing patches. Central resorption or atrophy of the same material in the epidermis and corium of such a patch explains the wasting and depression so frequently observed in each. By the destruction of the glandular and connective tissue elements in the course of a retrograde metamorphosis, a loss is produced which is made good by the peculiarly punctate form of the cicatrix which results.

Veiel classes the disease among the superficial inflammations of the skin.

Diagnosis.—The facies of the patient, with lupus erythematosus of that region, is usually so characteristic that the disease is there

¹ Med. Clin. Trans., 1875.

recognized with ease. When the hand and other portions of the body are involved, the diagnosis is somewhat less readily established. In the former situation, the disease has a predilection for the dorsum, and invades the palm usually only by extension to it from behind.

From lupus vulgaris it may be recognized, by its occurrence originally at a later period of life; by its greater tendency to symmetry; and by the absence of nodules, ulceration, and extension to the deeper portions of the skin or underlying structures.

In eczema, there is usually some history of moisture; in erythematous lupus, never. In eczema, also, the itching is a more persistent and distressing symptom; but the acuteness of even chronic eczema, as compared with lupus erythematosus, will suffice to distinguish the two diseases. Psoriasis is rarely, if ever, limited to a single patch on the face; it is also characterized by more lustrous and more readily exfoliating scales. Its patches are, furthermore, uniformly well covered with scales, and of equal flatness in all parts, while those of lupus erythematosus are irregularly squamous, the scales being often clustered at the orifices of the ducts of the sebaceous glands, while the rim of the patch is elevated and the centre depressed.

In acne rosacea, there are marked telangiectases and papulo-pustules or nodules which are not found in erythematous lupus. In tinea circinata, there may be a clearing, but never a cicatriform centre of the circular disk. The circular serpiginous syphilodermata of the face occur usually with other manifestations of lues, are characterized by a much darker hue of the dense infiltration, and exhibit distinct signs of ulceration in most cases. Cicatrization or atrophy of the skin without preceding ulceration, is the sign and seal of typical erythematous lupus.

Treatment—The internal treatment of this affection is not highly satisfactory. Often none is indicated or required. Anderson¹ highly recommends the trituration of twenty-four grains (1.6) of iodine with a little water, adding to this one ounce (32.) of starch, till a uniform deep blue, almost black color is obtained, after which the iodide is dried by gentle heat. A large teaspoonful is given in a little gruel three times daily. The administration of the iodide of potassium, arsenic, and iodoform has also been followed by noteworthy results. In general, however, cod-liver oil and the chalybeates will be found most serviceable, in connection with such hygienic regimen and diet as are in each case specially indicated.

The local treatment of the patches of disease is of importance. Inasmuch as the affection is one whose involution is occasionally accomplished under the influence of mild topical applications, and is succeeded very rarely by grave sequelæ, it is evident that the simpler measures should be first adopted. Of these, green soap, applied as a plaster, or in the form of the spiritus saponis viridis, is most serviceable. It not only cleanses the patch of its scales, but stimulates

¹ Brit. Med. Journ., May, 1880.

the surface, often to the extent of inducing a reparative process. The patch may be briskly rubbed, either with the soap or the spirit, in combination with hot water, after which an ointment may be applied, preferably sulphur, in the strength of two drachms (8.) to the ounce (32.) of petroleum ointment. When a decided effect is produced, the spirit may be discontinued, and the hot water and unguent for a time employed alone. A decided and beneficial effect can be noticed at times after the topical application of very hot water alone, sopped on the part for twenty minutes at a time with a small sponge mounted on a handle.

The following is a gentle stimulant:

M. Zinci sulphat.	}	ãã 3ss;	2	
Potassii sulphuret.				
Spts. vin. rectific.		f3iij;	12	
Aq. rosar.		f5iijss;	112	M.
To be diluted as required for external use.			[Duhring.]	

The following is a formula for a stronger lotion:

M. Chrysarobin.	3ijss;	10	
Acid. salicylici }	ãã 5ss;	2	
Calaminis pulv. }			
Ætheris	f3j;	4	
Collodii flex.	f3v;	20	M.
Sig. To be applied with a brush.			

For this may be substituted pyrogallol, in the strength of half a drachm (2.) to the ounce (32.) of salve.

Other substances for local applications are: the tars, iodized phenol, iodized glycerine, the iodide of sulphur, iodide of potassium, iodine in fine powder and tincture, naphthol, ichthylol, and chloracetic acid. Chrysarobin and pyrogallol have a decidedly favorable effect, subject, however, to the inconvenience of staining the skin, a prominent objection in the majority of cases where the disease is displayed upon the face. Upon the hands the author has employed chrysarobin with the effect of producing a typical cicatrix in the course of a month when the disease had lasted for two years.

Erasion by the dermal curette, in accordance with the method proposed by Dubini, of Milan, and popularized by Volkmann, of Halle, has been successfully practised by many operators; as also the treatment by multiple punctures. These have not met with the favor in lupus erythematosus which has been accorded them in lupus vulgaris; while multiple incisions by the lancet, or the instrument devised by Balmano Squire¹ have been rewarded with greater success. The instrument of the latter makes sixteen simultaneous superficial incisions in the patch previously frozen by the ether spray. Vidal² lays stress upon attacking in this way the peripheral zone of the lesions.

In exceedingly obstinate cases, those especially where the elevated rim of the erythematous disk refuses to yield to the simple measures

¹ British Medical Journal, May, 1880.

² Le Praticien, Nov. 14, 1881.

described, a solution of caustic potassium in distilled water, one part to two or four, may be gently applied with a camel's-hair brush, and the alkali immediately neutralized by the addition of dilute muriatic acid, as soon as the desired effect is produced. That effect, it must be remembered, is superficial cauterization only. When the sero-sanguineous exudation and reactive effects disappear, the rim is seen to be flattened and to have lost in part its violaceous blush. After such severe application, which should never be trusted to the hand of one unskilled in its use, an anodyne cerate should be spread over the part, containing morphia or opium.

Vesication with cantharides, recommended by Anderson, has been endorsed as valuable by several authors. The same may be said of the mercurial plaster, of which Kaposi speaks highly; while he and others agree that carbolic, salicylic, nitric, chromic, and sulphuric acids, the chloride of zinc, the other mercurial preparations, and arsenical pastes, are of less value.

I have used electrolysis with benefit in a few cases, passing the needle connected with the negative pole of the battery deeply into the involved tissue. Among other useful applications may be named pure creasote, white precipitate salve, Unna's gutta-percha plaster-mull of pyrogallol, iodoform, and the zinc oxide pastes (see p. 82).

Prognosis.—A favorable opinion with respect to the future of the disease can never be safely given; though, as regards the general health and comfort of the patient, there can rarely be question. At the same time the affection is capricious in its course, and may on occasions, after long periods of obstinate persistence, very rapidly improve under the simplest treatment. It is liable to relapse, though not to frequent recurrence.

Lupus Vulgaris.

Lat. lupus, a wolf.

Lupus Vulgaris is a neoplastic growth in the skin or contiguous mucous membrane, manifested in the production of slowly developing, reddish-brown nodules, whose involution, in certain cases, is succeeded by ulceration and the production of a cicatrix.

This disorder has also been termed *Lupus Exedens*, *Lupus Vorax*, and *Scrofulide Tuberculeuse*. Late discussion of the question of its extent, nature, and relations to other diseases, has been prolific in the production of an enormous mass of literature devoted to the subject, of which there is not space in a treatise of this scope for more than the briefest conclusions.

Symptoms.—The disease is characterized at its outset and throughout its career, by the development of numerous, softish, isolated, sub-epidermic nodules, varying in size from a millet-seed to a hemp-seed, encompassed by the derma, and betrayed to view in the epidermis by punctiform maculations of a reddish-brown color, which fade under pressure with the finger.

It is the subsequent evolution of these elements in each lupous

eruption, often, indeed, somewhat difficult to appreciate, which furnishes each variety of the disease. Thus they may be disseminated irregularly as in segments of circles (*LUPUS DISSEMINATUS*, *LUPUS SERPIGINOSUS*); or developed in bulk to the size of papules or tubercles (*LUPUS TUBERCULOSUS*); or proceed to involution by atrophy and desquamation (*LUPUS EXFOLIATIVUS*); or by ulceration (*LUPUS VORAX*, *LUPUS EXEDENS*); or be the seat of proliferating vegetation (*LUPUS VEGETANS*, *LUPUS HYPERTROPHICUS*); or of corneous and papillomatous growths (*LUPUS VERRUCOSUS*).

FIG. 59.



Lupus vulgaris of the face (from a photograph of one of the author's patients).

Under the title of *Lupus Sclerosus* (*Lupus Scéléreux*), Vidal, in 1883, described a form having a cicatricial centre, a circinate outline, and a firm elevated border, located often upon the hands.

A number of other names are employed to designate unessential features of the disease, according as its lesions appear in lines, with well-defined margins, or display elephantiasic, acute, chronic, and other phenomena.

The disease is quite rare in this country, and when seen is usually in papular or tubercular phases. The lesions are then commonly agglomerated in patches; and vary in consistency, size, and depth of involvement of the derma and subcutaneous tissues, though often distinctly circumscribed in outline. If involution occur, the papulo-tubercles flatten by atrophy, and the shining, tense, and imperfectly formed epidermis with which they were covered, exfoliates, leaving a cicatrix beneath.

When ulceration of the patch occurs, a suppurative, and often painful inflammation precedes; the ulcer, if the secretion it furnishes

be permitted to dry upon its surface, very slowly spreading beneath the crust. The lupous ulcer has a dirty, purplish-red, indolently granulating or hæmorrhagic floor; a generally circular outline; soft, neither elevated nor undermined edges; and a discharge which is sufficiently abundant to drip freely from an exposed surface, or to dry in peculiar, broad, flat, rather uniformly homogeneous crusts.

The nose is the most frequent seat of lupus, and this organ it may reduce eventually to a mere atrophied miniature of its former size, or utterly destroy by extensive ulcerative invasion of its integument, mucous membranes, and cartilages. It occurs also upon the cheek, chin, ears, lips, lids, scalp, neck, genitals, buttocks, and extremities. At times, two or more distant regions are affected. The author has at present under his charge a young Englishman with a palm-sized lupous patch upon and beneath the chin, and a large platter-sized exulceration on the right buttock and thigh, both of which have tormented him from his earliest childhood.

One of the most conspicuous features of lupus vulgaris is its essentially chronic course. Compared with other chronic infectious diseases it requires far more time for its complete evolution than either syphilis or carcinoma; and in this point is best compared with lepra. For a quarter of a century, a lupous patch may be limited to a space no larger than the palm of the hand; and exhibit some evidence of activity during the greater part of that period of time.

A form of lupus vulgaris, not very rarely observed, produces extensive changes in the skin (more particularly of the face) without ulcerative effects. Here a large portion of the skin of the head (cheeks, lips, nose, lids, chin, ears, brow, and neck) becomes altered by the lupous new growth. The resulting thickening produces a marked and characteristic deformity reducing the openings of the mouth and lids to narrow slits, interfering with vision, speech, and mastication, and producing a marasmus from these causes alone before there is ulceration at a single point.

The ravages of the disease are at times frightful in severity; not merely in consequence of the destructive ulceration to which it tends, but from the deformity left by its awkward attempts at repair. The entire head may be thus converted into a hideous travesty of humanity, while yet its possessor is left with all his vital organs and functions apparently unimpaired.

Etiology.—Lupus vulgaris is generally first seen between the third and sixth years of life; after the thirtieth year practically never, unless there have been prior symptoms of the disease. It is not congenital in origin, nor limited to either sex, nor to individuals of any social grade. It occurs in the anæmic and the asthenic; in the scrofulous, the tuberculous, and those free from such disorders. It is much rarer in this country than abroad, occurring here with nearly the frequency of lupus erythematosus. It is in no way related to either acquired or hereditary syphilis.

The author is in practical agreement with Neisser, who believes the disease to be a "partial manifestation of tuberculosis." Though

the actual demonstration is yet wanting, the proofs at hand point conclusively to the fact that lupus vulgaris should be classed with the infectious granulomata. The author has elsewhere called attention to the striking fact that the disease is commonly first manifested at the early period of life, when the habit is not yet established of keeping the soiled hands away from the face. Infection of the skin with the bacilli of lupus would thus produce, as is the fact, facial lesions in the majority of all cases and lesions of other exposed parts of the body (bare legs of children) in the order of ease with which they might become the seat of infection.¹

FIG. 60.



Section of a lupus nodule. *b*, normal corium; *a*, reticulum with lupus elements in groups; *c*, *d*, giant cells. (After Kaposi.)

Pathology.—For a knowledge of the microscopic characters of lupus vulgaris we are largely indebted to the Germans, whose opportunities for the study of the disease are unequalled. Virchow, Auspitz, Billroth, Lang, Kaposi, Klebs, Stilling, and Thin, of England, have amply contributed to the subject; and the result of their investigations may be concisely stated as follows:

¹ Relations of Lupus Vulgaris to Tuberculosis, Journ. of Cutan. and Vener. Dis., Nov. 1885.

The more recent nodules when divided exhibit at different depths of the corium roundish masses, comparable to a nidus or nest, above which spreads an unaltered epidermis. These foci of the disease are well defined in outline, and of a reddish-yellowish tint. Around them is woven a network of connective-tissue bundles; with larger

FIG. 61.



Section of lupus of face. $\times 750$ and reduced. (DELAFIELD and PRUDDEN.)

and smaller interspaces containing vascular elements, and also cells and nuclei, probably masses of protoplasm originating in the reversion of the connective-tissue elements to the embryonal state. Retrogression is marked by a diminished vascularity; while the elements disappear by resorption, or by the destructive process of ulceration followed by the cicatrix. Both Kaposi and Lang agree that the vascular and fibrous elements of the lupous mass are capable of developing new connective-tissue which later undergoes retraction. This is curiously in accord with the clinical result of Squire's treatment by multiple linear scarification, in which the lupous growth, after replacing the normal elements of the derma, becomes itself the source of the new material of repair.

When the disease is extending, the lupous growth, spreading along the vascular elements of the derma, involves finally the rete and the

panniculus adiposus. The nest-like agglomerations disappear; there is in their stead an irregularly diffuse infiltration, producing subsequently hypertrophic, atrophic, desquamative, suppurative, or ulcerative sequelæ. Finally, the glands of the skin may become involved, the hairs falling from their follicles, the sebaceous glands either becoming obliterated, or having their acini stuffed with epidermal masses which distend them in milium-like bodies grouped about a cicatricial pedicle. When, as observed by several authors, there is coincidence of lupus vulgaris and epithelioma, the latter is developed from epithelial cones, described by Kaposi as penetrating downward and in other directions from the coil-glands and the root-sheaths of the hairs.

The discovery of bacilli in lupous tissue, first made by Koch, has been since verified by Doutrelepont, Weichselbaum, Meisels, Schüller, Lustig, and others. The striking resemblance first shown by Virchow between a caseous miliary tubercle and a lupous nodule had, even before his discovery, pointed to an identity of origin.

The result of inoculation of culture fluids has given positive results. Lenz, Hüter, Schüller, and others, have produced tuberculosis in rabbits, by introducing within the eye granulations taken from lupous patients.

The bacteria of lupus are rod-shaped, and in length from one-fourth to one-half the diameter of a red blood-corpuscle. They are usually found within the cells, and commonly but one is visible in a single cell. They are, however, also found free in the lupous tissue. Some contain roundish or oval spaces. They are more abundant in recently formed lupous nodules exhibiting some pathological activity.

Diagnosis.—Epithelioma, though rarely resembling lupus vulgaris, is more often designated by that than by any other false title. Great confusion has arisen from the looseness with which several surgical authors have furnished illustrations of "lupus exedens," which were really pictures of cancer. But the latter is rarely a disease of early life, and when of such early occurrence never persists to adult years; while lupus is such exactly in the vast majority of all cases. The nodules of lupus are absent in epithelioma, and the evolution of the disease slower, less painful, and, in its earlier periods certainly, of deeper situation. The ulcer of epithelioma is more often defined and single; its edges whitish, indurated, and everted; its floor uneven and glazed; its secretion scanty and occasionally fetid; its base a mass of indurated tissue. Lupous ulcers are often ill-defined and multiple; their edges, soft and inconspicuous, neither everted nor undermined; their floors granulating and flattened; their secretion relatively profuse and generally odorless; their bases soft and pliable, though occasionally indurated.

Tubercular, serpiginous, and ulcerative lesions of syphilis may at times resemble certain forms of lupus. In any doubtful case a history of infection, of other types of cutaneous disease, of mucous patches, of adenopathy, of abortions in the female, etc., should aid in the recog-

nition of syphilis. The suspected lesions should be carefully examined for the purpose of distinguishing characteristic lupous nodules in the patch itself or in the periphery of any exfoliating area. In the case of an adult, a long history of lupus can be often obtained; and it is worthy of note that syphilis with exceeding rarity displays for long periods of time a single exanthematous lesion or aggregation of such lesions in one part of the body exclusively. The lupous ulcers, often multiple and isolated, insensitive, rarely of well determined outline, never reniform or horse-shoe shaped, with supple, low edges and reddish, smooth, hæmorrhagic granulating floor, covered with crusts like soiled parchment of uniform thickness, do not resemble those of syphilis. The latter are often painful, single, circular, and clean-cut in contour, with firm, raised, infiltrated margins, and with offensive greenish and blackish crusts, resembling oyster shells. The cicatrices of syphilis are elegant, smooth, delicate, superficial, circular, and, after pigmentation has disappeared, dead-white in color. Those of lupus are irregular, indurated, deforming, yellowish-white, and reddish-yellow.

Acquired syphilis is a disease of adult life; lupus begins in childhood.

The disks of psoriasis are distinguished from flat exfoliating patches of lupus vulgaris by the relatively large number of the former, the nacreous lustre of the scales, the reddish hæmorrhagic surface beneath, and the sites of election of the disks, usually on the extensor faces of the limbs.

Lupus erythematosus is even more readily distinguished by its characteristics; including the absence of nodules, ulcers, and crusts, the superficial character of the disease process, the scaliness, and occasional symmetry of the patch. Cases are described of intermediate forms between lupus erythematosus and lupus vulgaris, but I have never been able to persuade myself that these really occur. The two diseases, unfortunately somewhat similar in name, are unquestionably distinct in character. The so-called intermediate forms shown to me have been in every instance cases of flat and scaling epitheliomatous infiltrations going on to ulceration.

In acne and rosacea with a bulbous condition of the tip of the nose, the redness is vivid; and the telangiectasic complications with the seborrhœic flux, are conspicuous points of difference from lupus vulgaris. There is further no ulceration nor scarring, and the patients have usually suffered from the disease only after arriving at maturity of life. The mucous surfaces are also spared.

LUPUS OF THE FACE.—Here the first manifestations are the so-called primary efflorescences, exhibited on one or both cheeks, nose, or cheek and nose, as a dull-colored maculation, or minute nodule, often long unnoticed, or a finger-nail sized, purplish thickening of the skin. Extension may then occur by multiplication of lesions, or by spreading of the single patch, the central parts wasting or cicatrizing. The contracture of the irregular scars thus resulting may

produce an ectropion of the lid or lip, and with this is often seen the "bouffissure" of the features already described. Crusting and ulceration may be conspicuous or well nigh absent features. Gradually the subcutaneous tissue becomes involved.

The nose, as already stated, may, after absorption of the lupous tissue, become shrunken and retracted to a miniature of its former dimensions, its tip being noticeably reduced to a sharp point. In other cases (one such is now under the author's care), the point becomes bulbous, flattened, livid, and knobbed, with a thickened septum and distorted alæ, an isolated patch or two of lupus infiltration showing in the neighborhood of the cheek on one or both sides. The last described condition may lead by degenerative processes to the first, but is more commonly noticed as a less severe and more localized involvement of the face which may terminate, in favorable cases, without the severe mutilation first described.

The upper lip, when involved, becomes first swollen, fissured, hæmorrhagic, and crusted, and a granulating surface indicates extension of the disease to the adjacent mucous surface. Later, if the ulcer heal, the mouth, by contracture, is reduced to a repulsive looking slit or chasm in the face, permanently retracted, and either open or closed. The gums, lining membrane of the lips, velum, and hard palate may be also granulating, eroded, or whitish, when the exfoliated epithelium is *in situ*. Ulceration and cicatrization here also produce deformities interfering with the function of the parts, aphonia, for example, resulting from the operation of these causes in the larynx.

LUPUS VULGARIS OF THE EARS may be symmetrical in development, or affect but one auricle. As in eczema, a favorite point of election is the lobule, which, with or without tumefaction of the whole organ, becomes a pyriform, purplish, dependent tumor, agglutinated speedily to the cheek. Later, when ulceration occurs, the auricle may disappear, or be reduced to a shrunken shell of its former state, the external auditory meatus being, by the same process, occluded.

LUPUS OF THE TRUNK is, as a rule, more extensive and less destructive than lupus of other parts. Giant areas over the loins, hips, and belly may be involved in superficial serpiginous ulceration, the centre healing as the peripheral ring spreads. In these cases, it is even more difficult than in others to insure cicatrization.

LUPUS OF THE GENITAL REGION may occur in both sexes; and then, as a rule, has extended thither from affected areas of the adjacent integument. "Lupus of the genital region" in women, so called, beginning in adult years, and strictly limited to incoercible ulceration of the mucous surfaces without marked involvement of the groins, pubic region, or cutaneous surface of the labia, is usually syphilitic in origin.

LUPUS OF THE EXTREMITIES is remarkable for its interference with the mobility of the smaller bones of the hands and feet, as a result of rigid cicatrices; and also for the production of caries and osseous necrosis. Mutilating effects are thus produced by loss of phalanges, and also by shortening of the hand or foot after destruction of centrally situated bone. Elephantiasic enlargements of such organs as the hands and feet thus correspond to the livid tumefaction seen occasionally in the face. Thickenings, ridges, knobs, nodules, warty excrescences, ulcers, crusts, and callosities are often commingled, and in patients of mature years strongly resemble some forms of vegetating and ulcerating epithelioma.


LUPUS OF THE MUCOUS MEMBRANES means, for the most part, extension of the disease from an affected adjacent integument. The lupous nodule, in consequence of warmth and moisture, is here transformed into a moist papillary outgrowth, or externally granulating patch which may ulcerate and cicatrize. The borders of such an affected area are well defined, and its surface is of a dirty grayish-white color, where the investing epithelium is loosened but not yet detached.

Treatment.—The internal treatment of lupus vulgaris is practically that indicated by the condition of the patient; inasmuch as no medicament is known to be capable, after ingestion, of relieving the victim of his local ailment. Of the articles in this category none will be more often indicated than cod-liver oil, the chalybeates, the bitters, the preparations of iodine, and possibly phosphorus. Arsenic and mercury are powerless to prevent the extension of the disease. With these, it is needless to add, a diet of the most generous character is to be supplied, and the rules of hygiene enforced.

Iodoform and the iodide of potassium have been recently freshly recommended by Neisser, who employs the former in pills each containing half a grain (0.033). The hypophosphites are useful in many cases.

The local treatment of lupus vulgaris by the aid of parasitocides is based upon the infectious character of the disease; and in many cases is brilliantly successful. Dr. White, of Boston,¹ with a view to its parasitic action, applies to the lupous patches rags soaked in solutions of the bichloride of mercury, one to two grains to the ounce (0.066–0.133 to 32.), and also applies ointments containing the same quantity of metal in the ounce of salve-basis. The favorable results obtained by him have been again and again verified by the author, who is in the habit of freely painting lupous ulcers with a solution of corrosive sublimate in the tincture of benzoin of the strength named. Salicylic acid two to four per cent. solution in castor oil and in ointments, half to one drachm to the ounce (2.–4. to 32.); sulphurous acid (Hutchinson); pyrogallol (Neisser) in ten per cent. ointments, spread on

¹ Boston Med. and Surgical Journ., October 29, 1885

linen rags and covered with impermeable tissue; and iodoform, have all been successfully employed with the same object in view. 

A modification of the Dubini-Volkman method (that namely by multiple linear scarification) deserves mention here, as it is claimed with some justice to have changed the prognosis of the disease. It is somewhat doubtful whether anything is to be gained by either a preliminary freezing of the part, or the use of the cutting instrument of many blades devised by Squire, of which mention is made in the preceding article. The incisions are best produced with a delicate bistoury held in the fingers like a pen. They should be in parallel lines, closely set together, and crossed; should extend completely through the depth of the lupous growth; and this is determinable after some practice by the cessation of the creaking resistance which the blade fails to discover in normal tissue. Further, they should extend laterally beyond the borders of the lupous patch into the sound peripheral zone. The bleeding is trifling, and readily arrested by firmly pressing small pieces of fine sponge, lint, or absorbent cotton over the part. The edges of the incision unite either by granulation or first intention; and in both cases seem to serve as starting-points of the reparative process, the material for which, as already pointed out, seems to be supplied from the lupous nests themselves. Subsequent operations, when needed, require a previous freezing of the affected surface.

Less efficacious, more painful, and much more disfiguring in its results, is the method of erosion by the dermal curette. This instrument is a sharp-edged spoon with a fenestrum in the bowl to permit escape of the debris. With it, the frozen lupous growth may be completely scraped away, and, if necessary, caustics subsequently applied. The method of treatment by multiple punctures instead of incisions is efficacious, though less satisfactory. Schiff,¹ and Auspitz, have combined puncture with the introduction of iodized glycerine (one part of the former to twenty of the latter), the first named operator using a tubular needle filled from a rubber pipette.

The author has on several occasions, both in public and private, employed the Paquelin knife without anæsthesia and with good results. The finer blades, especially manufactured for the purpose, are thrust at a red heat again and again through the lupous tissue until it is destroyed in its depth. Over the whole, the lower blade is firmly passed and pressed, the blackish coal resulting being the best subsequent dressing after the serous exudation ceases. Americans are generally credited, abroad, with a preference for erosion followed by the galvano- or thermo-cautery.

Treatment by chemical cauterization alone is now somewhat obsolete. The various acids and alkalies, Cosme's paste, nitrate of silver, arsenical, mercurial, and zinc compounds, have all been thus employed, and each, in suitably selected cases, may be productive of fairly satisfactory results.

For the cases which do not require surgical or other operative

¹ Vierteljahrsft. f. Derm. u. Syph., Nos. 2 and 3, 1880.

interference, simple local applications may be made, such as oily and fatty substances for the softening of crusts; stimulating dressings of tar, iodated glycerine, thymol, ichthyol, carbolized glycerine, iodized phenol, naphthol, chrysarobin, and iodoform; as also the carbolated unguents appropriate for the reparative phases of the ulcer left after the destruction of the lupous growth.

The author's *dernier ressort* in the local management of ulcerative and rebellious forms of lupus vulgaris is creasote. It is applied with a brush in a pure state; is exceedingly painful, and often followed by uncomfortable reactive effects. It should be applied only by the practitioner. Cicatrization of exceedingly indolent and obstinate ulcers has followed this application.

Bartarelli applies, in similar cases, equal parts of resorcin and vaseline. Gerhardt,¹ of Berlin, claims to have had good results in the local management of lupus by the use of ice-bags. Gartner and Lustgarten² claim to have better results in the employment of electrolysis in lupus, by using as an electrode a flat silver plate attached to the negative pole of the battery, the plate being set in a hard rubber ring. They employ a current of from five to eight millampères.

Prognosis.—The future of most lupous patients treated with skill and in this country is quite satisfactory. Generalized tuberculosis or cachexia may complicate a small proportion of cases. The local process may result in grave deformity or disfigurement. But even in cases where this last issue seems of severest grade, if there be no recurrence of lupous nodules in the cicatrix, the latter, in course of time, becomes less and less conspicuous. One of the author's patients affected with disfiguring ectropion which several distinguished oculists failed to relieve by operative interference, completely disguised his deformity by the aid of a flesh-tinted silver plate covering the lid, and fastened by the aid of a slender arm to the bridge of a pair of spectacles.

Scrofuloderma.

Lat. *scrofa*, a sow.

Scrofuloderma is an affection characterized by indolent hyperæmic, granulating, and degenerative changes in the skin and subcutaneous tissue, associated with adenopathy of the contiguous lymphatic ganglia, and often with other evidences of a systemic vice of nutrition.

Symptoms.—The term Scrofula, or Struma, has been long and loosely applied in general medicine, for the purpose of designating a number of diseases whose real significance was unknown, and whose points of resemblance to each other were greatly outnumbered by their specific differences. The researches of the last twenty years have been steadily and continuously restricting this list, in almost every department of medicine. Many of the disorders once supposed to be scrofulous are now known to be syphilitic. Rickets, for

¹ Medical Times, November 7, 1885.

² Wien. med. Wochenschrift, Nos. 27 and 28, 1886.

example, is properly recognized to-day as a manifestation of hereditary lues. In orthopædic surgery, a number of joint affections once believed to be incontestably of strumous origin, are known to be producible by traumatism exclusively. And in dermatology, no less, a broad advance has been made since the day when eczema, psoriasis, and acne were described as evidences of scrofula.

It should, however, not be forgotten that there are few fast and hard lines in the economy of nature. The requirements of a scientific classification of diseases are often too rigid for the phenomena both of good and ill health. It cannot be questioned that the scrofulous may become both eczematous and psoriatic; that, in short, struma may coexist with other diseases.

The coexistence of cutaneous with other diseases proves nothing as to the essential character of either, or the relation of the one to the other. The author has at this moment in his charge two patients who have been psoriatic for years, each of whom has lately contracted syphilis, one with the addition of a blennorrhagia. The distinction between these disorders is admitted beyond a peradventure; and yet when the strumous patient gets eczema, acne, or lupus, it is difficult and often impossible to establish in the mind of some observers the conviction that there is no essential connection or relation between these disorders.

It is only by comparing such cases with the multitude of others where no such concomitance can be recognized, that a just estimate of the truth can be made.

This much premised, it may be added that the term, *scrofuloderm*, is here strictly limited to those cutaneous changes which occur in distinctly scrofulous subjects, and which are themselves stamped by the peculiar imprint of the disease. Billroth's description of the scrofulous diathesis may here be recalled. By this term he recognized that condition in which there occurs at any point in the body where irritation has been induced, an indolent inflammation which persists after such irritation has ceased, which frequently terminates in suppuration and caseification, and which subsequently rarely pursues an hyperplastic career. If with this be conjoined inflammation and caseous infiltration of the lymphatic ganglia or of the subcutaneous connective tissue; amyloid degeneration of one or several of the viscera; tumefaction of the belly; chronic keratitis, ophthalmia, otorrhœa, or coryza; a chronic arthritis (white swelling); a pasty, dirty-colored and thick, or delicate and transparent skin exhibiting cicatrices of old abscesses or ulcers, the general picture of the scrofulous patient may be considered complete.

The recognition by Robert Koch of the etiological importance of the bacillus tuberculosis in tuberculous disease, and the demonstration of the presence of these microorganisms in a number of lesions heretofore regarded as "scrofulous," has produced no little uncertainty as to the dividing line between struma and tuberculosis. Neisser, in the list of ten disorders described by him as both chronic and infectious, names tuberculosis as first, and under this as a generic title, places

miliary tuberculosis of the skin, scrofuloderma, and lupus vulgaris. Doutrelepon, Robinson, and a number of other authors regard these as related if not identical processes. The position assumed with regard to this question by Volkmann¹ agrees both with the strict requirements of pathological demonstration and with clinical experience. These disorders are identical as regards the bacillus, but different clinically.

The scrofulodermata are all characterized by the occurrence of pathological processes in the skin which betray the evidence of the scrofulous process. They usually begin as subcutaneous nodules similar in type to the syphilitic gumma, which gradually become attached to the skin, subsequently degenerate, exhibit characteristic ulcers, and usually terminate by no less characteristic cicatrices.

The typical scrofuloderm is encountered about the face and neck, where the lymphatic glands have long been tumid, and either dense or doughy to the touch. This condition is usually reached very slowly; often months and years are required for its production. The glands may be as small as almonds or as large as the closed fist. Gradually a scrofulous dermatitis ensues in the skin which is superimposed. It becomes purplish and thinned, and finally yields, giving exit to a sero-purulent fluid mingled with caseous matter and blood. The pus-corpuscles of this fluid, examined under the microscope, are seen to be poor in protoplasm. Fistulous tracts and sinuses result, which undermine and perforate the skin, resulting in the formation of a chronic discharge and characteristic ulcers.

The latter are far more remarkable for their borders and bases than for their floors. They are usually linear, occasionally elongated and oval, almost never circular. As a result, their uneven floors, covered with pallid granulations and a watery pus, are often hidden beneath their inverted, tumid, and uncolored edges: or the latter may be thinned, stretched over a fistulous pocket, and reddish or purplish in color. Their bases are usually deeply attached to the subcutaneous tissues, and are firm or soft, never densely indurated. The resulting crusts are thin, tenacious, reddish or brownish, and, like the ulcer, often linear, rarely bulky, never rupioid. The resulting cicatrices are corded, depressed in irregular lines or bands, and often alternate with equally irregular nodules (scrofulous gummata), where the degenerative process has been either arrested or is still in progress.

Rarely, enormous ulcers originate in the manner described above, which dissect out vast areas of subcutaneous and intramuscular tissues in the neck or over the extremities, in the course of which cartilage, bone, and periosteum are melted away. Usually but a few of these points of degeneration, from two to six, are exhibited in one patient.

The Papular Scrofuloderm (Lichen Scrofulosorum).

This eruption, first described by Hebra, is characterized by its chronicity, and the occurrence chiefly upon the trunk, back, and

¹ See his remarks before the German Surgical Society, Fourteenth Congress.

belly, of millet-seed to pin-head sized, firm, flat, light to livid red, and grouped papules. These are occasionally surmounted at the apex by a minute scale, rarely by an equally small pustule. The lesions are at the onset isolated; later, they tend to arrange themselves in coin-sized patches; when evolution is accomplished they are closely set together, the surface of the skin being then of a dirty reddish-brown color, and covered by thin scales which are readily detached. Often a crescentic outline can be determined in a group of aggregated lesions.

The course of the eruption is slow; often the cutaneous symptoms persist for months without apparent change, awaking little or no pruritus, and followed by involution, accompanied by slight desquamation and no cicatrices.

In ninety-nine per cent. of all cases observed in Austria, there was concomitance of the general symptoms of struma named above (submaxillary, cervical, and axillary adenopathy, periostitis, ulcerative dermatitis, etc.), with frequent complications, such as eczema of the scrotum and acne cachecticorum. The disease was encountered in young strumous patients between the periods of infancy and puberty, never after the twentieth year.

According to Kaposi, the disease consists in an exudative infiltration of the pilo-sebaceous follicles and the perifollicular tissue. Each papule represents, therefore, the orifice of a follicle, with an infiltrated perifollicular annex; and its apical scale or pustule, a mass of epithelial debris, or the inflammatory exudate.

The disease is readily differentiated, by the absence of itching, from papular eczema. From the miliary papular syphiloderm it differs in that the lesions of the latter, even though grouped, are always individually distinct. The general symptoms, however, are strikingly different in the two diseases. Lichen scrofulosorum cannot be confounded with lichen planus or lichen ruber. Lichen pilaris, however, in a young and lymphatic patient, might readily be mistaken for the disease in question.

This scrofuloderm is rare in France, and has not yet been recognized in this country.

The Small Pustular Scrofuloderm.

This eruption has been described by Duhring¹ only. In the three patients whose cases are reported, there were disseminated pin-head and small split-pea sized, yellowish pustules, having a firm base and purulent contents visible on the extremities, especially over the hands and forearms. Their course was indolent. Corneous, yellowish, or gray-tinted crusts succeeded, leaving a marked "punched-out" scar. Relapses occurred, the entire process lasting for months and years. The general symptoms of struma were present in each case. The disease is to be distinguished from the small pustular syphiloderm, acne cachecticorum, and follicular lupus. Microscopic

¹ Trans. Am. Derm. Assoc., Fourth Annual Meeting, Chicago, 1881, p. 29.

examinations of the lesions exhibited unmistakably a non-follicular origin of the disease.

The Large Pustular Scrofuloderm

is described by the same author as a rare eruption, constituted of large, roundish, flat pustules, with a deep red or violaceous areola. A thin, flat, brownish, and adherent crust partially or completely covers each lesion, after the desiccation of its yellowish contents, and beneath is found a shallow ulcer of the scrofulous type. One, two, or more lesions may exist, often over the sternum, where they leave superficial cicatrices. There is concomitance of the general symptoms of struma.

Etiology.—Scrofula is a disease of both sexes and all races, usually developed in early life, and pathologically due to the presence of the bacillus tuberculosis, though its clinical phenomena differ from those exhibited both in tuberculosis of the skin and lupus vulgaris.

All causes which tend to impair the nutrition and vigor of the body are, to an extent at least, efficient in its development, including privation from sunlight, fresh air, wholesome food, exercise, and hygienic influences in general. It is common among prisoners, exiles, and, in this country, among negroes and those of mixed blood. Consanguineous marriages are said to result often in strumous offspring. Syphilis, in the third and fourth generation, is known to be pathologically distinct from all of its manifestations. The question of the possibility of its production by inoculation and its transmission in a feeble degree by contagion is still unsolved, with the probabilities strongly in the affirmative. In many cases, it is the sequence of other depressing medical diseases and surgical accidents. In other cases, especially where it is limited to the neck, and accompanied merely by cervical or submaxillary adenopathy, it is consistent with full vigor and nutrition of the body and all other evidences of sound health.

Diagnosis.—The disease is to be distinguished by its general physiognomy from syphilis, lupus, cancer, purpura scorbutica, and other diseases exhibiting cachectic symptoms. The early age at which it is commonly developed is usually significant. The site of the lesions, with their characteristic ulcerations, crusts, and cicatrices, are also distinguishing features.

Treatment.—The general treatment of struma demands a generous supply of fresh air (especially that of the seashores abounding in kelp); a liberal animal diet, including an abundance of pure milk and cream; and the employment of cod-liver oil, iron, iodine, lime, phosphorus, and similar substances internally. The local treatment of the disease requires the employment of poultices, lotions, stimulating unguents, and disinfecting washes, with such surgical interference as is demanded by the existence of pus-filled pockets, sinuses, and fistulous tracts.

Prognosis.—The disease, when skilfully managed, is amenable to treatment. The strumous patient who survives puberty will, if surrounded by favorable circumstances, usually show fair health afterward. The course of the malady is, however, always tedious. The prognosis may be said in general to be based upon the severity of the symptoms in early life.

Tuberculosis of the Skin.

This exceedingly rare manifestation of tuberculosis is usually first disclosed in indolent, circular, or oval superficial losses of substance in the skin, covered with crusts. The floor of each is a granulating, hæmorrhagic, pale, reddish surface; its base is infiltrated, but supple; its edges are irregularly notched from the occurrence of succeeding purulent foci about the original sore. They spread very slowly, and, though small, may coalesce. They usually occur about the mucous outlets.

Tuberculosis of the skin, associated with or secondary to tuberculous foci in underlying tissues, is occasionally encountered. In this way, for example, in tubercular disease of the testis, the skin will become painful, tender, and of a livid hue, will become attached to the subcutaneous tissues, and finally yield, giving exit to a soft, caseous matter, mingled with pus. Wagner,¹ Weber, Vidal, and other authors have described similar changes. True tuberculosis of the skin proper is of exceedingly rare occurrence. Chiari and Järisch have, however, reported such cases, one in a man forty-two years old, who had behind the left ear a reddish-yellow, crescentic, granulating ulcer, with infiltrated borders and a number of degenerating miliary granulations upon the velum of the palate. *Post-mortem*, isolated and grouped, roundish nodules were discovered undergoing caseous degeneration. Spillman² gives several instances of tuberculization of the skin associated with pulmonary phthisis.

Two cases of tuberculosis of the skin have been observed at Kaposi's clinic.³

The patients were aged respectively fifty-three and thirty-six years. In one, there were buccal, laryngeal, and tracheal ulcerations of tuberculous character, with an ulcer of the upper lip, occupying the entire space between the nose and the lip. The other patient presented a coin-sized ulcer near the left ala nasi, and others on the lip and adjacent gum. In one of these patients, the lungs were intact, and the tuberculosis of the skin was primary. The other died of pulmonary phthisis; but in both there was intestinal tuberculosis. Microscopical examination of the cutaneous lesions disclosed numerous tubercles in the corium which had undergone caseous degeneration. In the centre of the mass, disseminated miliary nodules, transparent or light-yellow in color, were visible in the parts which had not undergone characteristic granulation.

¹ Diseases of the Testis, T. B. Curling, F.R.S., London, 1878, p. 389.

² De la Tuberculisation du Tube Digestif, Thèse de Paris, 1878.

³ Deuts. Med. Zeit., Jan. 1882.

There are several disorders of the skin, which may be very briefly considered in this connection, whose nature is obscure, and with regard to whose identity there may be some doubt.

AINHUM.—This disease was first described by Dr. J. F. Da Silva Lima,¹ of Bahia, in Brazil. In a paper by this observer, which was read by me before the American Dermatological Association, in 1880,² the disease was described as affecting usually the little toe of the negroes resident both in Africa and Brazil. An indurated ring encircled the root of the digit, which produced, finally, a deep, narrow, circular depression, the latter deepening till the toe was strangulated, and finally, in the course of from five to ten years, completely detached. Meantime, the volume of the digit was greatly increased by development of fatty tissue at the expense of the tendons, vascular elements, bones, and cartilages.

This paper was accompanied by the presentation of a toe affected with ainhum; and the specimen was referred to a committee, who examined it with care, and reported the result of the examination by the succeeding year. The report, presented by Dr. Heitzmann, of New York, after giving a full description of the anatomical appearance of the specimen, suggested the probability that the constricting ring was produced artificially by tying a thin ligature around the toe, which, if not continuously encircling it, was worn at least for long periods of time.

Duhring³ also has published the report of a case of ainhum where microscopical examination of a toe which was cast off from the foot of a negro in West Virginia was made by Dr. Wile. The latter came to the conclusion in this case also that the disease was essentially an inflammatory œdema produced by ligating the toe.

PODELCOMA.—This disease, known as Madura Foot, Mycetoma, or the Fungous Foot of India, attacks generally the foot, though the hand also may be affected. Its beginning is insidious. The part becomes swollen, painless, and covered with pea-sized vesicles, boutons, or elevations, over which are dispersed minute blackish granules. Each tubercle surmounts a sinus, from which, after bursting, is discharged a thin, sero-purulent fluid, containing granules, separate or aggregated in yellowish-brown mulberry-like masses. The swelling gradually increases, till the foot is a misshapen organ, riddled with sinuses which perforate periosteum and bone. Then fistulous tracts discharge from time to time granules like poppy-seeds, caseous matters, or substances likened to blackish fish-roe.

According to Carter, the disease depends upon the existence in the parts of a specific fungus, *Chionyphe Carteri*. The spread of this mycelium in the skin, subcutaneous tissue, and deeper parts produces the tubercular buttons which break down and ultimately lead to the

¹ In the *Gazeta Medica du Bahia*, Nov. 13 and 15 1867.

² *Arch. of Derm.*, October, 1880.

³ *Amer. Journ. of the Med. Sci.*, Jan. 1884.

sinuses described above. Some authors are incredulous, however, as to the mycotic nature of this affection. The disorder has been studied by Vandyke Carter, Minas, Moore, Christie, and other surgeons of India, a country where the disease has been prevalent. Tilbury Fox presented, at different times, two specimens of the disease to the London Pathological Society; and it is worthy of note that in England the black masses were not in every case discovered. Kemper¹ has reported a similar case in this country.

Prof. Chas. T. Parkes, of Chicago, has recently had under observation a similar case, occurring in the person of a gentleman who had long been a resident of India. From the notes kindly furnished the author, it appears that, after the occurrence of characteristic tubercles, an ulcer attacked the skin over the inner malleolus of the right ankle, and steadily increased in size and depth for a period of five years, in spite of all treatment. Sinuses extended deeply to the tissues beneath. The entire surface was covered by a peculiar, softish, light colored, fluffy material, corresponding to that described by several of the Indian observers. The general appearance of the disease was unlike any previously observed here. The entire surface was thoroughly scraped with a Simon's spoon, and dressed with a saturated solution of boric acid, after which repair ensued.

SYNOVIAL LESIONS OF THE SKIN.—Under this title should be described certain strictly cutaneous lesions which possess some importance from a diagnostic point of view. I have had the opportunity of observing these in several individuals, where the exact nature of the disorder had not been understood. They occur in the form of wart-like projections from the skin, pseudo-vesicles, and bullæ, always over the site of bursæ connected with tendons, traversing the small articulations of the hand and foot. They are seen over the metatarso-phalangeal articulations; and in the hand most frequently over the dorsal face of the articulation between the distal and adjacent phalanges of the index and thumb. The first form is that of a roundish, corneous, pea-sized wart with a yellowish centre, of long duration, usually insensitive unless roughly handled. When punctured, a syrupy, yellowish, or grumous fluid exudes, and continues to form after repeated puncture. Split-pea sized vesicles, and bullæ as large as a silver fifty-cent piece, often exceedingly painful, are also seen, especially upon the feet, with simply an epidermic roof-wall. Each contains the same thickened, yellowish, or whitish fluid, occasionally mingled with masses like sago grains. In every case the contents of the lesion are supplied by a synovial bursa beneath the skin, with which the lesion is either directly connected, or in communication by a short sinus. The treatment requires the complete excision or destruction of the secreting cyst-wall.

Mr. Sidney Jones, and Mr. Makins, of St. Thomas's Hospital, have recently exhibited several lesions of this character to the London Pathological Society.

¹ Amer Practitioner, Sept. 1876.

THE SARTIAN DISEASE (TASCHKENT-GESCHWUR) is an infectious granuloma, described by Heiman,¹ and examined microscopically by Rudniew.

It occurs in Taschkent, affecting the face, upper extremities, and trunk, avoiding always the palmar and plantar regions. Reddish maculæ develop here into nodules, which desquamate, coalesce, degenerate, and leave crusted ulcers, which may cicatrize.

Syphiloderma.

Syphilis is a chronic infectious disease, transmitted by heredity, or by the medium of intoxicated blood or morbid secretions, capable of involving in its course any one of the organs and tissues of the body, whose manifestations in the skin are termed syphilodermata.

Syphilis is a disease not yet actually demonstrated to be produced by microorganisms, but whose position among the infectious granulomata is now almost established. It is true that Lustgarten, Doutrelepon, and others, have demonstrated the presence of bacilli resembling those found in tubercle, in papules, nodes, chancres, and secretions from syphilitic lesion; but the strict requirements of science as to the proofs of etiological value in these particular germs have not yet been fully satisfied with respect to this disease. Whether these microorganisms or others be finally demonstrated to be the potent agency in producing syphilis when it is transmitted by the medium of a virus, it is at least certain that the revelations made by late investigations into the nature of lepra, mycosis fungoides, and tuberculosis lend the very strongest support to the doctrine that the contagium of syphilis is due to the presence in its secretions of a species of bacterium.

Syphilis has been described by one writer as an "imitator of other diseases." Whatever exception it is proper to take to the doctrine implied by such a term, it is necessary to understand clearly of the manifestations of the disease that they are protean in character, and may occur in every organ and tissue of the body. These manifestations are both like and unlike the symptoms of non-syphilitic disease of such organs and tissues. It would be, therefore, more in accordance with facts to describe syphilis as a special mode of disease. Its phenomena differ from other pathological phenomena, chiefly in the syphilitic modality with which they are impressed. After infection there is a different behavior of the living matter or protoplasm of which the body is constituted. Its mode is thenceforward temporarily changed, as regards the processes of disease. Hence the importance of recognizing this modality in relation to disease of the skin, and of ascertaining the limits within which this influence is both originated and exhausted.

The skin manifestations of syphilis are of common occurrence;

¹ Deutsch. med. Woch., No. 3, 1883.

numerous as to their forms, and of the greatest importance from the diagnostic standpoint.

As in syphilis of other organs, that of the skin is betrayed in symptoms like and unlike those of non-syphilitic affections. The study of these differences is here also a study of the syphilitic mode of disease. In a treatise of this scope and within these limits, it will be proper to describe only those evidences of the syphilitic process to be recognized in the integument. The initial lesion of the malady occurring either on the mucous membrane or integument, requires brief consideration :

CHANCRE.—A chancre is that modification of the sound or pathologically altered skin or mucous membrane, preceded by a period of incubation, characterized by sclerosis, and accompanied by adenopathy, which constitutes the initial lesion of inevitable syphilis.

Chancres usually appear upon or about the genital organs simply because those organs are most often exposed to the disease. They may, however, occur upon any portion of the surface of the body.

They appear after a period of incubation, an interval of time between the date of exposure to the disease and the manifestation of its first symptom. This period averages in length twenty-one days, and may extend from ten days to two months and even more.

The chancreous modification may, as stated above, involve the normal or pathologically altered skin or mucous membrane. Upon previously sound surfaces chancres may appear, after the incubative period, as macule, papules, tubercles, erosions, fissures, or ulcers, each of which, at some future period of its history, is characterized by a peculiar hardness of the tissues about and beneath the lesion, this condition being known as the initial sclerosis. These symptoms vary according to the location of the lesion, and the friction or other external treatment to which it has been accidentally subjected. Generally it may be said that they all tend to the papular type, the macule developing into that lesion, the tubercle being evolved from its exceptional enlargement, the ulcer from its degeneration, and the erosions or fissures from the accidents of its less pronounced features. Occurring upon mucous or quasi-mucous surfaces, these lesions are influenced by heat, moisture, and friction (labia, prepuce, etc.). Here the superficial erosions are usually circular in outline, are very slightly depressed, and rest upon delicate beds of sclerosed tissue, the so-called parchment induration. The papule is often represented by a macular discoloration of the membrane, tolerably well circumscribed, where coarse examination would scarcely suggest elevation of the surface, with a sclerosis of no greater extent than that of the erosion with which it probably sustains a close relation. As a result of heat, moisture, and friction, however, the typically dry and scaling papule constituting the chancre of the integument, is here rarely encountered. More often, the lesion is a circumscribed ulcer with clean-cut walls, penetrating deeply to the derma or even below it, with a scanty secretion and reddish floor, resting upon a split-pea sized mass of sclerosed tissue. Other usual forms are superficial

erosions, in themselves of insignificant aspect, surmounting large nodules, tubercles, or even long linear ridges of densely sclerosed tissue, undergoing repair or degenerating according to the condition of the patient and the treatment to which he has been subjected. These erosions are usually out of all proportion to the size of the indurated mass upon which they rest. Such voluminous indurations are occasionally perforated by deep conical or funnel-shaped ulcerations of formidable aspect, to which the name "Hunterian chancre" was once applied.

Occurring upon cutaneous or mucous surfaces where there has been a previous pathological condition, the syphilitic mode is impressed upon the symptoms significant of such previous disease. This accident is sufficiently common, and the resulting lesions as different as those of different diseases. Thus a man or woman may be infected with syphilis at the site of an herpetic vesicle upon the lip or genitals, such vesicle being unbroken and recent, or several days ruptured; or at the site of a balanitis; or of a vegetation; or of the soft contagious sore of the genital region best recognized in America under the term "chancreoid." Or the inoculation may occur at the site of a traumatism, as for example where the frenum is slightly torn in coitus, or where the bruised knuckle of the accoucheur is exposed during the practice of his art.

The induration of chancres may precede, accompany, or follow the lesion with which they are associated. The sclerosis may be short-lived, persistent, or recurrent; and in this respect resemble the chancre itself, which may endure for but a few days, or be in course of full evolution at the date of the appearance of the so-called secondary symptoms.

With very rare exceptions, the ganglia in anatomical connection with the chancre become, as a consequence, enlarged and specifically indurated. With genital chancres there is usually double inguinal adenopathy; with labial chancres, submaxillary adenopathy; with chancres of the lid, pre-auricular adenopathy, etc. The glands usually enlarge within a few days after the appearance of the chancre, and remain in that condition for several months afterward. They are indurated, on one or both sides of the body; are freely movable; are unattached to surrounding tissues; are neither painful, tender, nor inflammatory; and hence neither terminate by suppuration nor ulceration.

It will thus be evident that the word "chancre" is applicable only to certain features assumed by other lesions; and is not itself descriptive of a lesion differing absolutely from all others. It is indeed clear that there can be no particular chancre lesion, since in turn the macule, vesicle, pustule, papule, tubercle, erosion, vegetation, ulcer, and fissure may each become a chancre. Every other elementary lesion of the skin, therefore, may assume the chancrous features, in other words, display in its disease-process the modality of syphilis. These chancrous features are: infection; sclerosis after an incubative period; coincident or consequent adenopathy (sclerosis of neighboring

ganglia); and, after a second incubative period, the occurrence of the symptoms of general syphilis. The last named is of course an historical feature, not recognizable during the greater part of the life of most chancres.

Their minor features are less constant and trustworthy. Chancres of the skin are often deeply pigmented. Some are painful from the occurrence of inflammation. Some are injured by traumatism (chancres of nipple in nursing women); some, by irritants (caustic improperly applied); some finally are so insignificant in feature (chancre of the vagina) that even the expert is readily deceived in their recognition.

With or without involution and complete disappearance of the chancre, the symptoms of general syphilis occur only after a second period of incubation. This extends usually from between the end of the first to the end of the second month after the appearance of the chancre, the average being between the fortieth and forty-fifth days. During this period the general condition of the patient is one which, by subjective and objective phenomena, displays signals of the approaching distress of the economy. There is anæmia and even in cases, chloro-anæmia, wandering pains, substernal or about the articulations, a cachectic look, engorgement of the superficial and deep ganglia, occasionally a well-marked febrile process, the so-called syphilitic fever, and, as Bumstead has shown, a special irritability of the skin and mucous membranes.

At this moment, the second period of incubation of the disease being completed, the patient is ready for an "explosion" of general syphilis. Insidiously or suddenly, first noticed upon the skin beneath the clothing, with rapid efflorescence over the entire surface after a hot bath, the stimulus of liquor, or the excitement of the dance, appear the syphilodermata, or syphilides, the skin symptoms of syphilis.

Syphilodermata.

Lesions of the skin appear in syphilitic individuals of both sexes, in all periods of life, and in all stages of the disease. They are, however, much more frequent during the first two years after infection, subsequent to which period the symptoms of the disease are more commonly betrayed in subcutaneous lesions, or those which affect the viscera, the osseous, nervous, muscular, and vascular systems.

GENERAL CHARACTERISTICS OF THE SYPHILODERMATA.—The syphilodermata, like chancres, are, properly speaking, modalities of such symptoms as occur in diseases not syphilitic. The distinctive difference between the papules, ulcers, and other lesions of syphilis and lupus for example, is a difference chiefly in their mode of evolution and involution. It is the syphilitic behavior, rather than the syphilitic lesion, which guides the diagnostician to his end. The syphilides, in short, resemble in their lesions most of the other diseases

of the skin, and differ also in various degrees from each one of the latter. Hence is seen the importance of a clear recognition of their general characteristics :

Absence of subjective sensation.—The eruptions produced by syphilis are rarely attended by itching, burning, or painful sensations of any sort. This is frequently a positive aid in establishing a diagnosis, and, as a rule, is the more valuable the graver the lesion. Great difference, however, will be noted in this respect between different individuals. Occasionally considerable itching will be perceived, and syphilitic ulcers, especially of the leg, will be productive of severe pain. At the same time, it is a common experience to find a patient quite tranquil as regards all subjective symptoms, covered from head to foot with a brilliant macular syphiloderm, or exhibiting, with the utmost composure, an enormous number of serpiginous ulcerations on his scalp and extremities.

Polymorphism, multiformity of lesions, a term used to designate the coincident appearance of lesions of various types upon one individual, is true of syphilis as of other diseases such as lepra and scabies. Viewing the cutaneous and other lesions of syphilis as a whole, this feature is strikingly significant, as it is possible to observe at one and the same time upon the person of a single infected individual, symptoms indicative of pathological changes in the skin, mucous membranes, hair, nails, lymphatic glands, and periosteum.

To a less marked degree, this is true of the syphilodermata. The type of the syphilitic skin lesion is generally papular; and such lesions may originate from macules, enlarge into tubercles, or degenerate into ulcers. The simultaneous coexistence of several of these forms is often due, as Bumstead and Taylor have well shown, to their chronicity, their tendency to recurrence, and the changes which they undergo.

Career.—The historical course of the syphilides suggests certain common features. They are rarely accompanied by local inflammation, and with the exception of the syphilitic fever, are usually unattended with pyrexia or malaise. The tolerance by the general economy of an extensively developed syphiloderm, is highly significant of the disease. Again, syphilis, though generally described as a chronic disease, is, judged from the standpoint of time merely, much more acute than several others. The syphilides have a distinct career, pursuing, even when untreated, a natural process of evolution and involution. Few, save those upon the lower extremities where the force of gravity is an important element in the fixation of all local disease, persist in unvarying type for any lengthened period of time. One lesion is apt to succeed another by development or degeneration; and many of the untreated syphilides disappear without leaving relics of their existence upon the surface of the skin. In these last named particulars, syphilitic cutaneous manifestations are singularly different from lupus and carcinoma, for example, where the lesion is usually of one type, and persists in one location for a long period of time, during which the syphilide which it resembles

would have progressed either to much more extensive damage or permanent repair.

Color.—There is no color peculiar to the syphilodermata, which may not be seen in other diseases of the skin. It is important to recognize the fact clearly, as there are those who claim to diagnose the syphilides by their hue alone. The color, however, considered in connection with the other features of the syphilides, is highly characteristic, and often sufficient to enable one at a glance to identify the nature of the disease. These color shades are usually less brilliant than those seen in other cutaneous diseases, and possess less of the scarlet and crimson quality. They are admixtures of red, yellow, and brown, in various proportions, with a frequent slight preponderance of the brown. They have been compared to the color of raw ham and copper, terms which have been unfortunately so associated with the hue of the syphilides, that the non-recognition of such peculiarity has led to many errors in diagnosis. Pigmentations, in various shades of chocolate, coffee, and black, are recognized among the syphilides both during their evolution and after completion of their involution. The process, as in cases where there has been no luetic affection, is here also due to increase of the pigment in the part, both with and without the extravasation of blood. Recent syphilitic scars are usually pigmented both in centre and periphery. Here also it is not so much the color, as the scar *with* the color which gives special significance to such lesion-relics.

Contour.—The contour of single elementary cutaneous lesions in syphilis as also of a group of aggregated lesions, is usually either circular, or has a distinct tendency to assume such a configuration. Thus it is common to find outlines of patches, ulcers, and scars observing the curve of a segment of a circle; and coalescence of several such tends to produce the serpiginous aspect. The earlier exanthems of syphilis are usually symmetrical; the later, asymmetrical. Even the symmetrically distributed eruptions will at times occur in annular patches, made up of maculo-papular lesions arranged in a circular or crescentic line. Patches of syphilitic eruption will often clear up at the centre and develop or spread at the circumference of a circle.

Site.—No portion of the integument is free from the possibility of invasion by syphilis. It may involve at once almost the entire integument, or spread rapidly from point to point, having covered finally a large area, or appear conspicuously at distant and isolated points of limited extent, or, finally, be exclusively manifested in an insignificant lesion or group of lesions, ephemeral in course, and limited to one portion of the body.

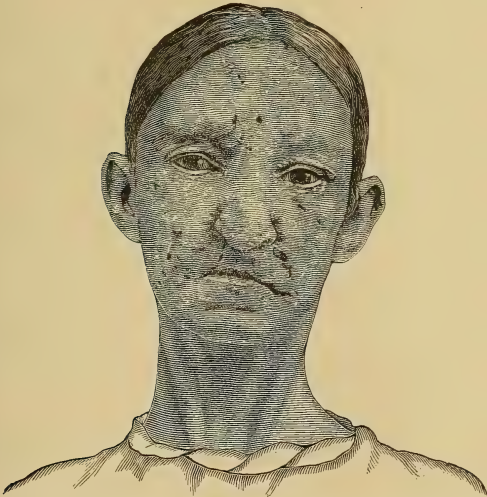
The site of a syphilitic eruption may be determined apparently by the capriciousness of the disease, and yet result from local irritation of the skin of infected individuals. The accumulations on the napkin of women invite the occurrence of labial condylomata; the lips of the infant, after contact with the nipple of the mother, become the seat of rhagades and fissures; while the tongue of the

tobacco-chewer and the fauces of the tobacco-smoker acknowledge similar sources of mischief.

There are some sites of preference for special lesions, as, for example, the squamous syphiloderm of the palms and soles, and the papules of the forehead, constituting the so-called "corona veneris."

Amenability to treatment.—Mercury possesses a singular influence upon the syphilodermata, which is promptly perceived when the drug is administered internally. This singularity rests upon the broad fact that the lesions of most other cutaneous diseases not only refuse to acknowledge the benefit of such medication, but in many cases are aggravated by it. The importance of clearly recognizing the character of each cutaneous disorder submitted to treatment is thus well illustrated.

FIG. 62.



Facial cicatrices of tubercular syphilodermata after twenty-five years of infection. (From a photograph of one of the author's patients.)

Characters of certain particular lesions.—Certain families of lesions in syphilis exhibit characteristic features. Thus some papular lesions are surrounded at the base by a peculiar fraying of the epidermis, in consequence of which they are encircled by a little fringe of scales resembling a collar. The scales of syphilis are usually not abundant, but fine, dirty-whitish in color, or occasionally brownish. The crusts of syphilis are apt to be bulky, greenish-black in hue, and to surmount secreting ulcers of various depths. Such ulcers are generally circular, or exhibit in contour a tendency to

assume the circular line, while the cicatrices by which they are succeeded have a similar configuration. The scars of syphilis are frequently smooth, delicate, very slightly depressed, unattached to subjacent tissues, and pigmented. Lastly, from several of the secreting lesions of syphilis, especially those upon and about the ano-genital region, proceeds a discharge having an offensive odor, and capable of communicating the disease to a sound individual by inoculation.

Syphiloderma Maculosum.

The cutaneous lesions of syphilis, limited to color changes in more or less circumscribed areas of the skin, are exhibited in two distinct forms, due respectively to anomalies in blood and pigment distribution.

(A.) THE MACULAR SYPHILODERM DUE TO HYPERÆMIA is termed by several authors the ERYTHEMATOUS SYPHILIDE, or SYPHILITIC ROSEOLA. It is the earliest expression of cutaneous syphilis, and is more or less constant in occurrence, differing in this respect from several of the other syphilides. It is often unnoticed by the patient, whose attention may be first called to it after its recognition by the skilled eye of another. It occurs in coffee-bean to filbert-sized maculæ, roundish, oval-shaped, or of irregular contour, varying in color from a light rosy to a dull mulberry hue. In some cases, these markings of the surface are very indistinct, requiring for their recognition the closest scrutiny in a clear light, and occasionally even then leaving uncertainty in the mind of the expert. At times, they constitute an irregular "marbling" of the surface, of a kind which renders it difficult to define with the eye the individual lesions of which the eruption is composed, while the general visual effect of the exanthem is exceedingly distinct. They are not elevated above the general level of the integument, but may change in type, a papular lesion developing later in the same site.

Like all maculæ of the skin due to vascular changes, they vary in color with the complexion of the individual, with the time which elapses after their first appearance, and with vascular changes in the superficial plexus of bloodvessels. Thus the deeper shades are usually observed in thick and muddy-tinted skins; the more delicate upon the breast, for example, of blonde women. The eruption usually appears between the sixth and eighth week after the appearance of the initial sclerosis, and, when untreated, develops for about one week more. It persists for a variable period of time, depending upon the severity of the constitutional disorder and the treatment to which the patient is subjected. During the early part of this time, the hue of the lesions is lighter, and they may be made to disappear under pressure; later, they are more deeply stained, and, exudation having occurred, the color of the spot does not disappear under the finger. When involution is in progress, there is slow disappearance of all symptoms of the eruption, which fades gradually from view.

The vascular changes in the capillaries, occasioned by cold, heat, and rapid cardiac contractions, all influence the eruption to a marked degree. A hot bath, a dance, a glass of spirits, a fit of excessive coughing, laughter, etc., may all bring the lesions into prominence.

The eruption may be limited to the skin of the belly, extending also sparsely over the chest, loins, ano-genital region, and thighs, the palms, soles, forearms, and legs, or, in exceptional cases, profusely cover the entire surface of the body, face, ears, dorsal surfaces of the hands and feet, and skin of the penis with the pro-genital region. In the milder forms, it is evidently susceptible to external irritation of the skin, as it is common at the wrists where a starched cuff is worn, over the brow in the line covered by the hat-band, and particularly well developed in men where the trousers are "reinforced" (perineum and inner faces of the thighs).

At times, as in the exanthematous fevers, the eruption is preceded by a febrile state with marked amelioration of symptoms when the rash is fully developed; while again it is throughout accompanied by slight rise in the temperature, the patient having the so-called "bilious" appearance, muddy complexion, coated tongue, icteroid hue of conjunctivæ, and offensive condition of the breath. Wandering pains in the extremities, and especially beneath the sternum, are frequently experienced. The last mentioned is highly significant, and the whole is probably due to the effect upon the nervous system of the circulation of the recently intoxicated blood. These pains are not those produced later in periosteal and other complications of the disease, and are the more significant as the eruption itself is productive of a scarcely appreciable subjective sensation. The superficial ganglia of the body are usually engorged at the same time; the fauces congested; the hairs of the scalp slightly loosened in their follicles, and, in the latter region, in severe cases, papules and pustules may form. Inasmuch as the order of sequence of phenomena in syphilis is subject to a singular inversion, it occasionally happens that there is concomitance of later signs of the disease, such as iritis, affection of the nails and bones, or even, in places, pustular, papular, and squamous syphilodermata.

Much less rare is the survival of the initial sclerosis to the date of this efflorescence. This is a point of considerable importance. The physician should never conclude the examination of a patient complaining of suspicious genital lesions without carefully exploring the surface of the trunk, and also never pronounce upon an exanthem of this sort without minute inspection and palpation of the part where an initial sclerosis may exist. In a diagnostic and therapeutic sense, the information thus gained may be precious, and in a large proportion of all cases is of a kind quite hidden from the knowledge of the patient.

Relapses occur in certain cases with limitation of the disease to parts previously affected or unaffected. At the end of the first twelve-month, recrudescence of larger maculæ in annular groups may occur. Exceptional forms are noted where darker puncta appear in the

macular lesion, occasionally traversed by a hair. These are localizations of a more intensely hyperæmic or exudative condition about the orifices of the ducts of the follicles.

The diagnosis of this syphiloderm is readily established, in view of its essentially symptomatic character. From scarlatina, measles, and rôtheln, it differs in the indolence of the rash, the absence of decided elevation of temperature, and the order of its appearance in different portions of the body, as it rarely occurs first upon the face. Urticaria and the rashes induced by the ingestion of copaiba and other medicaments, are distinguished by the marked itching of the surface and their very general diffusion over the entire body rarely observed in the syphiloderm. Tinea versicolor, usually limited to the anterior surface of the trunk, is characterized by a fawn to chocolate tinted color, by the existence of the readily recognized vegetable parasite beneath the scales scraped from the surface, and by the furfuraceous desquamation which the patient usually describes as most noticeable after a hot bath. It is, moreover, of much longer duration. Ringworm of the skin of the body is not symmetrical, and is also a parasitic disease.

All these distinctions, however, are not to be compared for a moment in their diagnostic value, with the concomitant symptoms of syphilis, which are very generally present, such as adenopathy, persistence of the initial sclerosis, and evident involvement of other than cutaneous tissues.

Such concomitant symptoms will be found occasionally with a non-syphilitic eruption due to drugs ingested for relief of the infectious disease. The most common of these is the iodide of potassium; and the eruptions it produces are frequently found both commingled with the macular syphiloderm and occurring on the eve of the appearance of the latter. The existence of acneiform lesions upon the face, neck; and posterior surface of the trunk, a vivid erythema of the forearms including the hands, and purpura-like maculations of the face, legs, and feet, should never mislead the physician as to the character of the disorder with which he is confronted. It is undeveloped syphilis with a dermatitis medicamentosa of the surface. Suspension of the iodide, which fortunately is not required in the immense majority of all such cases; the use of a properly selected mercurial, or even (and this is often wise) abstention from all medication, will be succeeded by disappearance of the cutaneous lesions, which may be followed later by a mild macular syphiloderm, altogether insignificant in comparison with the eruption artificially induced.

(B.) The second form of *SYPHILODERMA MACULOSUM* is that DUE TO ANOMALOUS DISTRIBUTION OF PIGMENT, described by authors under the title of the *PIGMENTARY SYPHILIDE*. The eruption, if such it may be called, is occasioned by the appearance upon the surface, of irregularly circular, usually poorly defined, dirty brown and chocolate tinted maculæ which, as they are entirely

unconnected with vascular changes, do not disappear under pressure. The lesions occur as sparse and well isolated discolorations or, more commonly, as forming by a species of confluence an irregular rete or network, with relatively large interspaces characterized by an absence of such color. The eruption is most common upon the sides of the neck especially in blonde women, though it may more rarely involve the surface of the trunk and the extremities. It is also most frequent during the first year after infection, though it may develop later.

According to Fox, of New York, the color changes observed in the skin are explained by the occurrence: first, of pigmentary deposit chiefly at the centre of the ordinary macular or papular syphiloderm; second, of peripheral absorption of such pigment with possible persistence at the centre of the lesion for a variable time; third, of total absorption of all pigment from the original lesion; and lastly, of peripheral hyperpigmentation of the spaces intermediate between the original maculæ.

The eruption is regarded by some observers as an epiphenomenon of the syphilitic process, being not amenable to the treatment under which other macular syphilodermata speedily disappear. It is of rare occurrence; and in the cases where I have had the opportunity of studying its features, seemed to be an expression rather of general deterioration of the health of the skin than of specific disease.¹

It is liable to be mistaken for that condition in which there is simply an accumulation upon a somewhat greasy skin, of secretions and dust, to be seen upon the integument long unwashed. Tinea versicolor has a more yellowish or fawn-colored tint, and is more abundantly developed upon the front of the chest than the neck. Neither chloasma, vitiligo, nor leucoderma are symmetrically disposed, as is usually the pigmentary macular syphiloderm.

Syphiloderma Papulosum.

The type of all cutaneous lesions produced by syphilis, is to be recognized in the papule. Most of the others are either developed from it, transformed to it, or by reversion or admixture, confess that the neoplasm of syphilis in the skin is essentially a more or less solid circumscribed cutaneous lesion, varying as to size and history.

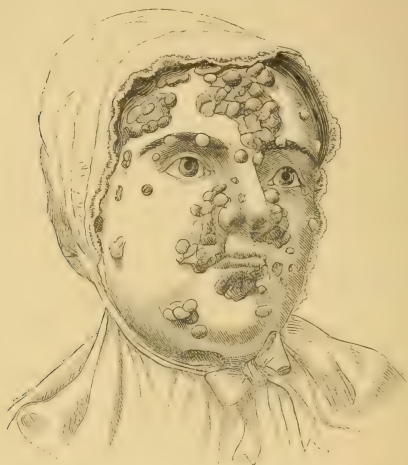
Papules, occurring in syphilis, may appear as the first cutaneous evidence of infection, or may be developed from earlier maculæ. They may be small, acuminate, flat, large, disseminated, or in groups.

SMALL ACUMINATE PAPULAR SYPHILODERM.—In this eruption the lesions are recognized as millet- to hemp-seed sized, circumscribed, globular, acuminate, reddish, and salmon-reddish, firm elevations of the surface, or minute nodules upon the skin, generally symmetrically

¹ The author has seen this eruption most perfectly developed upon the skin of Chinese patients affected with syphilis.

developed, often over the entire body, closely set together, and occasionally grouped in crescentic figures. When viewed with care, a minute vesicle, pustule, or scale may be often detected at the conical apex of each lesion, which rarely develops to such an extent as to become a characteristic feature of the eruption. The color is at first, especially in blonde skins, a species of salmon and red, mixed; later, the darker and browner shades appear. When generalized, the eruption is well developed, especially over the posterior face of the body, the occipito-cervical and scapular regions, the buttocks and calves of

FIG. 63.



Syphiloderma papulosum. (After JULLIEN.)

the legs, though it is often distinct about the anus and genitalia. Like several other of the syphilodermata, its earlier are more symmetrical than its later manifestations, whether these be tardy, or relapsing, or both. The involution occurs by resorption of the plastic exudate, minute and usually scanty, dirty-whitish, colored scales encircling the base of each lesion. When the eruption has proved especially persistent, marked pigmentation follows in the form of brownish-red blotches, the centre of each of which displays a cicatrix-form relic in the form of a punctum.

The eruption is often first noticed about the forehead, nose, mouth, and neck, localities commonly subject to topical irritation. Thus about the forehead in men, the papules will be frequently arranged along the band pressed by the lining of the hat; and the frequent fingering of the face, shaving, and irritation by the edge of the collar

of the shirt, may determine a more speedy efflorescence in the sites of contact. About the mouth, tobacco plays the part of an excitant; and about the nose, a localized seborrhœa may be added to the syphilitic phenomena, in which case the lesions may be covered with thin greasy crusts. The eruption is common during the first six months after infection, and is usually fully developed after a fortnight when no treatment has influenced its evolution. When the lesions are perforated by hairs, they suggest, on superficial examination, a resemblance to lichen pilaris, and when aggregated in patches of distinct contour, they might be confounded with psoriasis or squamous eczema. But in every case the physiognomy of the disease in general may well be trusted for the establishment of a diagnosis, having in mind the color, the absence of intense pruritus and serous exudation, the disposition over the body as a whole, or in portions widely separated, and the rarely failing concomitant evidence of syphilitic infection.

LARGE ACUMINATE PAPULAR SYPHILODERM.—Lesions of the character just described occasionally develop to an unusual degree, attaining the size of a coffee-bean in localities where the apex of each is free to push forward without coming into contact with adjacent planes of the integument. Thus about the dorsum of the body, the gluteal regions, the calves of the legs, and the extensor surfaces of the forearms, they may be seen as fully developed, slightly scale-capped or scale-encircled, and grouped papules, often commingled with pustules and superficial ulcers, the polymorphic patch having a figure of eight or S-shaped outline. These are apt to be distinguished in patients under treatment, the influence of which has interfered with the full evolution of the disease.

THE SMALL FLAT PAPULAR SYPHILODERM.—The lesions recognized under this title differ from those just described in that they are not acuminate, but distinctly flattened at the apex, this flattening being at times so pronounced that the lesion resembles a small button or plaque. The contour is roundish or oval-shaped. They are frequently encountered on the face, especially near the mucous outlets, over the anterior and posterior surfaces of the trunk, and on the flexor aspects of the extremities. The palms of the hands are often affected. In color they exhibit the variation usual in individuals of different complexions, and in the same individual according to the condition of the circulation. Thus, on the face, a scarcely distinguished pink will become a deep, lurid, reddish-brown from an attack of sneezing, a paroxysm of laughter or rage, and violent exercise. The seborrhœic condition noted on the face in the acuminate lesions is also occasionally seen about the plaques. The same is true of the scaling described above. The eruption is much less copious, as a rule, than with the other forms of syphilitic papules, due doubtless to the fact of its frequent occurrence in those subjected to some treatment. It differs from the lesion about to be described with respect to its size, being rarely larger than the smaller buttons employed as "shirt studs," while the

largest papules of the same variety may attain the size of the largest overcoat button. The diagnosis is in general that already given.

THE LARGE FLAT PAPULAR SYPHILODERM.—Here the resemblance to a button is even more distinct, the lesions occurring with a well-defined, firm, raised border, and a shallow depression in the centre, though at times, especially in moist situations, the superficies of the plaques is a smooth, flat plane. They commonly begin as macular lesions and rapidly develop at the periphery, this development often corresponding to centric involution by which the shallow depression described above is reduced to the level of the adjacent skin and the lesion transformed to a ring. In shape they are circular and oval; and, in size, vary from a finger-nail to the section of a pigeon's egg. They have the usual variation in color, and may scale at the edge, or over the flat top, or the depressed centre. In moist situations they frequently secrete a muco-purulent fluid which smears the papules and adjacent integument; and in the vicinity of the anus or genitals exhales an offensive odor. It is especially in such situations that they occasionally degenerate by fissure or circular ulceration. Condylomata Lata are such lesions, flat and secreting papules of the region named, somewhat transformed by the influence of heat, moisture, and either friction or apposition of contiguous integumentary folds.

The eruption may become generalized, or be limited to certain sites of preference, as the face, neck, flexor surfaces of the extremities, and the ano-genital region. It is either an early, late, or intermediate symptom of syphilis, in my experience occurring most abundantly in young and delicate skins, where the disease has been ignored, and therefore untreated; and most scantily in the thicker integument of middle life, where prompt resort has been had to appropriate medication.

Syphilitic papules undergo a series of modifications, under the influence of various causes, which may be enumerated as follows:

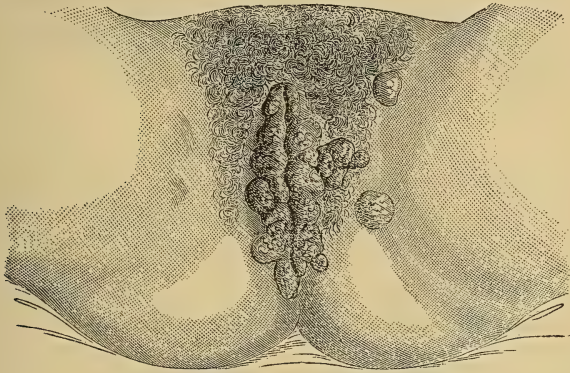
(a) There is considerable hyperplasia of the cutaneous elements (papillary layer of the corium, rete, and bloodvessels), by which the papule becomes largely raised from the surface, so as to resemble a papilloma or wart, or the lesions characteristic of frambœsia. In this way, rarely, a portion, or the entire surface, of the body may be covered with light-red or violaceous red, non-ulcerative, vegetating growths. They secrete freely, and the discharge is liable to congregate into crusts, and to exhale an offensive odor. De Amicis¹ has described a marked instance of this lesion occurring upon the scalp, under the title of the "frambœsioid condylomatous syphiloderm." A translation of his paper by myself appeared in the *Archives of Dermatology* for October, 1879, p. 39.

(b) There is considerable hyperplasia of the elements, in consequence of which the lesion spreads laterally, while its elevation from

¹ *Annal. Clin. de Osped. Incurab.*

the surface is prevented by contact with apposed surfaces. Thus is formed the broad, flat, moist papule, known as the vegetating mucous patch, condyloma, *plaque muqueuse*, etc. The lesions, when unaltered and fully developed, are of a decidedly whitish color, from the puriform mucus which covers them and which, as with so many of the syphilodermata in moist situations, is liable to exhale an extremely offensive odor. When the secretion is removed, the lesions are seen to be pinkish, or light or dark red in color, and to be either firm or soft, scarcely raised, and indefinite in contour, or distinctly elevated and very well defined. They are chiefly found in moist situations, where regions of the skin are apposed, as about the perineum, groins, axillæ, mammæ, nates, anus, genitals, and inner faces of the thighs. They may coalesce so as to form palm-sized patches, and frequently are associated with hyperidrosis, seborrhœa oleosa, and the dried products of secretion from the mucous outlets adjacent.

FIG. 64.



Vegetating condylomata of the vulva. (After JULLIEN.)

(c) In consequence of changes in the superficial layers of the epidermis, the papules may become covered with scales, either at the base or apex, more commonly the latter, forming thus the papulo-squamous syphiloderm. The scales are of a dirty grayish hue, often desiccated, generally attached, rarely freely exfoliating. They are relatively few, occurring where the lesions are closely set together. The desquamation may be the most suggestive feature of the patch. Beneath them, show distinctly elevated brownish-red papules or merely slightly elevated, dull-red or purplish-red maculations. When the scales accumulate at the base of the papule, they tend to surround it with a circlet or collarette of exfoliated shreds of epidermis.

In consequence of the thickness of the epidermis in the palms and soles, the papular or papulo-squamous syphiloderm of these regions is presented under somewhat atypical forms. These are recognized as the PALMAR AND PLANTAR SYPHILIDES. The dense stratum corneum of the epidermis in these situations is not readily raised from its underlying tissue into papular forms. Its pathological manifestations in this disease are rather displayed in thickenings, separations, stainings, and frayings.

FIG. 65.



Palmar syphiloderm. (After KEYES.)

Here, therefore, are seen dull-red maculations, covered throughout, or at the edge merely, by scales or epidermal shreds; minute, firm, corneous thickenings, few or many, often without color in consequence of the depth of the vessels beneath the opaque horny layer; and distinctly elevated (not flattened) and circumscribed papules, of the usual livid-red color, coffee-bean to small-nut in size, often aggregated in patches having a tendency to assume the circinate outline. These are covered with dirty-whitish, tenacious, half-loosened, epidermic flakes, which are quite characteristic. In yet other cases, usually in consequence of the motions of the hand or foot or the exigencies of toil, irregularly angular losses of epidermis are visible, resembling the fracture of a pane of glass, which project, at the edges only, over deep fissures, broad exulcerations, or a ham-red, tender, and newly formed epidermic stratum.

The eruption is frequently seen in the centre of both palms and soles symmetrically, rarely upon the dorsum of the hands and feet, and then never typical, but always by extension from the former regions; also on the lateral surfaces of the hands, feet, fingers, and toes. It is a persistent, rebellious, and usually late cutaneous symptom of syphilis, occurring often six, eight, and more years after infection. Rarely it is seen within a few months after the existence of chancre, and is then usually manifested in its simpler forms.

The papulo-squamous syphiloderm bears in many instances a strong resemblance to the patches of psoriasis, but can usually be

readily distinguished from the latter by a consideration of the following points :

The syphilide is, as a rule, not generally diffused ; displays symmetry only when it involves the palms and soles ; is elevated at the border of the patch ; and observes the contour of the segment of a circle. Psoriasis is more widely diffuse ; generally symmetrical ; not specially elevated at the border of the patches ; and the latter are rather more completely than partially circular in outline. In the former there is generally a history of infection, of other cutaneous or mucous symptoms of the disease, and in the married woman, of abortions, miscarriages, or birth of diseased children. All this is wanting in psoriasis. In the latter there is a decided predisposition to the development of the disease about the extensor surfaces of the joints and the posterior aspect of the trunk ; the syphiloderm, though it may occupy these situations, can rarely be found thus displayed when the other surfaces are neglected. The scales in psoriasis are more lustrous ; more freely produced and shed ; and exist significantly at an earlier period of the exanthem. It may be safely said, that with only such exceptions as prove the rule, psoriasis is never strictly limited to the regions of the palms and soles. A scaling, palmar or plantar disease of the skin in childhood is more apt to be psoriatic, though both diseases are seen in the early periods of puberty.

Eczema is yet more readily recognized by its severe itching, its history of discharge and moisture, and its characteristic crusts. Ancient patches of squamous eczema are often very indeterminate in outline, do not ulcerate, and exhibit the scales on the surface of a much more deeply infiltrated area. Eczema of the palms and soles, when chronic, usually involves the dorsum of the hands and feet, whence it has extended to the former situations. When this is not the case, the eczematous infiltration if of long duration, will, in the vast majority of all cases, be found to involve uniformly and evenly the entire palm or sole, including the palmar or plantar faces of the digits. Eczema is, finally, much more frequently encountered either solely upon the right hand in right-handed patients, or to a greater extent in that organ by reason of its preference in the performance of function. This is less common in syphilis.

Syphiloderma Vesiculosum.

The vesicular are either the rarest of all cutaneous symptoms of syphilis, or do not actually exist. Certain French authors describe pin-head to pea-sized, conical, globoid or umbilicated, isolated or grouped, and crusting elevations of the epidermis, with lucid or cloudy contents, seated upon the face and genitalia. The eruption is described as an early syphiloderm, often exhibiting a halo of characteristic tint, the resulting crusts being granular and somewhat lighter

in color than those which are commonly seen in the disease. Both small and large vesicles have been thus assigned to the disease.

But the larger number of such lesions are, without question, either immature pustules, eczematous lesions in syphilitic subjects, or pure accidents of the syphilitic process. With regard to the first, it may be said that the pustular syphiloderma not rarely begins as a vesicular lesion; with regard to the second, that coincidences of so common a disease as syphilis with other cutaneous disorders is a matter of frequent observation; and with regard to the third, bearing in mind the large quantity of iodide of potassium swallowed for the relief of the disease, and its capability of exciting a vesicular eruption, it can be reasonably concluded that some, at least, of the cases of so-called vesicular syphilis have been imperfectly studied.

Syphiloderma Pustulosum.

Pustular lesions in syphilis present a wide range of differences. They vary in size from a pin-head to a finger nail; may be acuminate, flat, hemispherical, or irregular in shape; may be few or very numerous; distinctly localized or generally dispersed; grouped or disseminated, and may occur from the first as minute vesicopustules, or as pustular transformations of variously sized papules. They may be surrounded by inflammatory areolæ, or spring from an unaltered integument, or be sub-epidermic in situation, and scarcely project from the surface. They may be seated upon superficial or deep, sharply cut, secretory ulcers, and are usually followed by crusts differing in bulk and consistency, forming thus the pustulocrustaceous syphilide. According to the depth of the ulceration at the base are they followed by cicatrices. Pigmentation is a frequent result. The crusts which form by the desiccation of their contents are usually reddish-brown to greenish-black in hue, occur in strata or laminæ by accretions from beneath, and, even when superimposed upon a moist and secreting ulcer, are quite adherent at the edges. They may occur early or late in the disease, and at either epoch constitute trifling or grave cutaneous lesions. They have a marked predisposition for involvement of the sebaceous and pilary follicles, and are frequently disposed about the mucous outlets of the body.

SMALL ACUMINATE PUSTULAR SYPHILODERM.—This exanthem is usually largely diffused over an extensive surface, and probably represents, as Jullien has suggested, a transformation from papular lesions due to either a pyogenic tendency of the infected subject, or to uncleanness and external irritation of the skin. It is certainly rare in patients of the better class who are seen in the private *clientèle* of the physician. The pustules are generally recognized about the pilo-sebaceous orifices, and upon minute papular lesions, which, as undisguised elements of the eruption, may be interspersed

among the latter. They are acuminate and contain but a droplet of cloudy serum or pus, whose desiccation furnishes a thin yellowish or reddish-brown crust. The fall of the latter exposes the grayish epidermal fringe of the base occasionally seen in papules of similar size.

The lesions may be discrete, confluent, disseminated, or in groups affecting the curve of a circle. The extremities and trunk are chiefly involved, though the disease may be well nigh universal. Under the influence of treatment, minute, punctiform, and pigmented cicatricial atrophic depressions form, which are not persistent. The eruption may be an early or late secondary symptom, but is usually first seen within a few months after infection. Relapses occur when treatment has been irregularly pursued. Their concomitants are those symptoms of syphilis proper to the period in which they appear.

LARGE ACUMINATE PUSTULAR SYPHILODERM.—The lesions are here usually coffee-bean sized pustules, which may spring from macular or smaller pustular lesions, very rarely from an indurated or papular base. They have a thin roof-wall, occurring by preference where the epidermis is delicate, and are often surrounded by a halo. They are usually acuminate, but may, after full evolution, slightly flatten at the apex in consequence of partial collapse. The crusts are bulkier and darker in color than those of the lesions just described; their bases are superficially ulcerated. They occur slowly or with rapidity, in disseminated or grouped forms, usually at an early period of the disease, though commonly after the appearance of some syphilide of another type.

SMALL FLAT PUSTULAR SYPHILODERM.—This is a relatively frequent manifestation of syphilis, occurring upon the face, scalp, trunk, and the flexor surfaces of the extremities. It exhibits a decided tendency to characteristic and circular grouping about the mucous outlets of the body. Such groups are composed of small, flat pustules, originating as reddish, macular lesions which tend to dry in flattish, irregular, adherent crusts; and the latter either surpass the limits of the diseased surface beneath, or are conspicuous upon a dull brownish-red area of inflamed, and even at times ulcerated, aspect. Often the pustules are so closely set as to become confluent, and in such case a single convex crust, like a carapace, will often completely cover the involved area. Frequent sites of the exanthem are the regions about the nose and the lips, as also the chin, beard, and the anterior faces of the elbow and wrist-joints.

The eruption is of the pustulo-crustaceous type, and may be evolved from either papular or macular lesions. In this country, it is rarely long untreated, and when in full evolution is, therefore, not often presented for observation. It is usually amenable to judicious treatment, and, when followed by severe ulceration, destroying one ala of the nose or a part of the lip, the patient has usually suffered

from either cachexia or neglect. In these same cases, less severe phenomena are presented in the superficial serpiginous syphilide, the lesions extending in circinate or annular gyrations about a sound or previously involved and healed centre. Thus a circlet of crusts, with underspreading superficial ulceration, perhaps alternating with pustules of various ages and reniform cicatrices, will surround the elbow or traverse the scalp. The resemblance to pustular eczema is at times suggestive; but the ulceration and outline will aid in their discrimination. The lesions are usually late among the earlier symptoms of the disease, but may be delayed for six months after infection. They indicate, as a rule, either severity of the disease, or, much more commonly, constitutional impairment.

LARGE FLAT PUSTULAR SYPHILODERM.—The lesions here are, naturally, fully developed forms of those described above. Like the latter, they originate as usually numerous, maculo-papular symptoms, which gradually deepen into pea-sized and even larger flat pustules, whose further history is one of enlarging, blood-mixed, reddish- and greenish-brown, also flattish crusts with underspreading pus-bathed ulceration of varying extent. The superficial variety of this syphiloderm is distinguished from the deep, chiefly by the extent of its ulcer, the size of its superimposed crust, and the slighter, dull-red areola which encircles it.

The deep variety, like the superficial, may be limited to the scalp, face, neck, and flexor aspects of the extremities, or it may be much more widely diffused. I have seen the entire surface of the body covered with discrete lesions of this type in cases of unusual neglect or profound cachexia. It is usually of late occurrence, but in the so-called "galloping syphilis" of the French, it may be precocious in development. The lesions are at the onset nodules or tubercles, which become transformed into pus, and which have a deep infiltrated base with a dark brown halo. Incrustation follows, with the formation of a conical, roundish, or oval-shaped, blackish-brown crust, beneath which lies a clean-cut ulcer, its sharp edges usually exactly roofed by the incrustation. The crust thickens by concretions from the foul and purulent ulcer beneath, and spreads at the periphery while it thickens in the centre. In this way, the stratified crust comes to resemble an oyster-shell, the condition described by some authors as *RUPIA*, a term once employed as the name of a disease. The ulcer which is exposed after removal of the crust is of characteristic syphilitic type, in its deep base, foul floor, clean-cut edges, and sanguineo-purulent secretion, attaining at times a diameter of several inches, and having a circular, reniform, or horseshoe-shaped contour. The degree of destruction it may occasion is proportioned to the constitutional vigor of the subject and the treatment pursued. It is usually a grave but may be a malignant exanthem, though under favorable circumstances it is easily managed. It may be an early, though is usually a late symptom of the disease. The pigmented scars left are characteristic and indelible.

Syphiloderma Bullosum.

Bullæ in acquired syphilis are late and relatively rare lesions. They are pea- to large nut-sized elevations of the epidermis, filled at first with a cloudy serum, which is soon transformed into pus, and often mingled with blood. They have usually a characteristic halo about the periphery; are roundish or oval in contour; are usually discrete, rarely disseminated, and, after development, produce characteristic crusts with underlying ulcers, identical in features with the rupioid sequelæ of large syphilitic pustules. The eruption is localized by preference upon the extremities, more particularly the lower extremities, and is indolent in its course. It is always significant of a cachectic condition in the subject of the disease. Its more frequent occurrence in congenital syphilis will be described later. It is to be distinguished from pemphigus vulgaris by its characteristic crusts and ulcers, considered in connection with the history and associated symptoms of lues.

Syphiloderma Tuberculosum.

In this eruption, the lesions are usually multiple, flat, roundish, circumscribed, firm, light to dull crimson-red nodules, beginning commonly as maculæ of a lurid hue. They vary in size from a coffee-bean to small nut and involve the entire thickness of the skin, often also of the subcutaneous tissue. Their surface is smooth, glazed, or desquamating; and their evolution peculiar in this, that they rarely exhibit apical pustulation or ulcerative degeneration.

The eruption is, with few exceptions, usually limited to one or more regions of the body, such as the forehead, the chin, the nucha, the buttocks, and the outer surface of the thighs. It is less often disseminated than grouped. Occasionally but a single tubercular lesion may be displayed upon the surface of the body, the recognition of whose character usually demands some skill on the part of the diagnostician. When occurring in groups, the typical circinate appearance of the syphilodermata in general may be wanting, the patches having an irregular boundary; but at times the circular, reniform, or horseshoe-shaped outline is quite distinct, with an inclosed area of integument, unaltered or the seat of atrophic changes. At other times the lesions assume a serpiginous character and distribution, a condition to which the term

Syphiloderma Tuberculosum Serpiginosum

has been applied. Bumstead and Taylor, however (wisely it seems to me), prefer to reserve that title for the description of the serpiginous syphiloderm of ulcerative type.

In exceptional cases, the lesions thus described are marked by secondary changes. They may become covered on the surface with

a thin yellowish crust; may lose their firmness and become soft and rather more lurid-red in hue from colloid, or even rarely suppurative, degeneration; may vegetate luxuriantly and become the seat, especially on the scalp, of warty growths, smeared with a semi-purulent secretion of disgusting odor (*syphilis papillomatosa*, *syphiloderma frambœsoides*); or may finally ulcerate, the superimposed crust thickening in bulk, deepening into blackish and greenish shades, and covering typical syphilitic exulcerations, with characteristic edges, floor, base, and secretion. The degeneration in the latter case may be rapid, and the destruction extensive. This is, however, of rare occurrence.

FIG. 66.



Ulcerative tubercular syphiloderm. (After KEYES.)

The course of the eruption is indolent, months usually elapsing before its full evolution is accomplished. In untreated cases there is unquestionably produced a generalized and symmetrical syphiloderm. It is rare, however, even in hospital and dispensary cases, to observe such generalized development; the more superficial, generalized, and symmetrical the lesions, the briefer, as a rule, is the interval between such an eruption and the date of infection. The later the lesions, the more apt are they to be asymmetrical, localized, and profound in their involvement of the deep tissues. This syphiloderm rarely appears in the second, more often in the third or fourth, still more rarely in the fifth, tenth, or fifteenth year of the disease.

Resolution occurs by resorption leaving in the site of the tubercles, according to their age, size, and contents, livid and pigmented maculations, or peculiar, pigmented, atrophic, cicatriform areas. Scars following the ulcerative lesions are typical in color, shape, and career,

the pigmentation of both cicatrix and areola blanching from centre to periphery, and leaving a delicate, dull-whitish, glazed, or slightly desquamating membranous new growth, ancient relics of this process resembling in appearance thin, small coin- and larger-sized, circular sheets of mica.

The diagnosis is between lupus vulgaris, lepra, epithelioma, and psoriasis. In lupus, the age of the subject, the character of any scars left upon the surface, the chronicity of the disease, and the absence of a history of polymorphism, will usually point to the nature of the disease. The tubercles of lepra are very much more indolent than those of syphilis, and have a characteristic oiled or varnished look, never the livid or dull crimson color of those last named. Set upon the forehead, the tubercles of syphilis, nearer the line of the hairs, never give the leonine aspect of those at the lower border of the forehead and over the eyebrows of the leper. In epithelioma, the age of the subject and the history of the disease are always significant. In the early stage of epithelioma, the patient is often in a condition of excellent general health, while the imprint of cachexia is distinct in tubercular syphilis of the skin. In the later stages of epithelioma, the ulcer with everted edges and eroded, hæmorrhagic floor, "varnished" by its translucent secretion, is totally different from the "punched out," syphilitic ulcer with its puriform secretion and discolored crusts. The deep infiltration of even the desquamating tubercular syphiloderm will distinguish it from the circular patches of psoriasis.

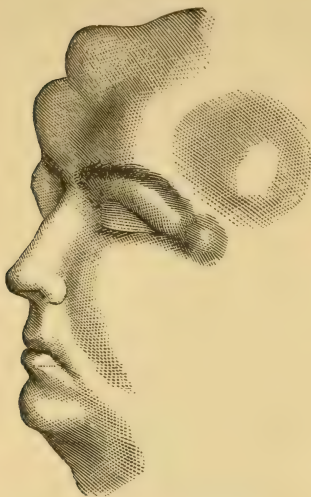
Syphiloderma Gummatosum.

The gumma is a lesion peculiar to syphilis; no other disease exhibiting an exactly similar feature. It is usually a late or so-called tertiary manifestation of the disease; and is commonly observed in the form of one or relatively few, subcutaneous, strictly circumscribed, firm, well rounded, painless and indolent tumors or nodules which, when first observed, are scarcely larger than a pea. They are then covered by an unaltered integument and are quite movable.

Very slowly they may, when untreated, increase in size till they have the dimensions of a marble, an egg, or even bodies of a considerably larger size. Sooner or later, when not resolved by treatment, they usually become attached and the overlying skin becomes involved, showing by its livid, reddish, or purplish hue, and its hyperæmic areola, that it threatens to yield. Finally, at one or several points, the skin is so thinned as to be incapable of further resistance, and a thick sanious secretion is exuded, whose gummy character has given the lesion its name. When the inflammation has been active, its secretion may be wholly or partly purulent, and in that case be furnished, either by the contents of the tumor, or the peripheral tissue which participates in the process. Ulcers always result, occasionally fistulous in type, roundish or oval in contour; with edges clean cut, and floor purulent and extending to the subcutaneous tissue, tendons,

aponcuroses, cartilage, or bone. Thin and yielding bands or bridges of undermined skin often extend between several such solutions of continuity, and usually melt down in the presence of the destructive process. When repair is progressing, which is decidedly the rule as regards the ultimate result, granulations spring from the floor, the

FIG. 67.



Syphilitic gummata of head and face.
(After JULIEN.)

edges contract, and the gummatous eventually exhibits the appearance of a simple ulcer, save in the thinned, purplish, pigmented appearance of the outlying integument. The scars are typical, bleaching from the centre, and may be attached to periosteum or bone, though this is exceedingly rare. Considering the depth of the process, the gumma of the skin is certainly as a rule succeeded by less evidence of destruction than is threatened at the height of the process. About the neck, the cicatrices may be linear in shape and slightly puckered. Upon the lower extremities and trunk, they are usually circular or oval.

But one gumma may appear upon the person of a single individual and, when this is the case, it will usually be found upon the leg. Half a dozen or more may at other times coexist. In one instance, I counted more than one

hundred upon the person of a male patient who was the father of two syphilitic children, and who at the time had also symptoms of visceral syphilis. This number is greatly in excess of any previously observed by me in a single case. Gummata may develop upon any part of the body, and when situated over the trunk of a nerve become the seat of severe neuralgic pain. They are particularly amenable to treatment; and may undergo resorption, leaving little or no trace of their former existence.

Gummata are to be distinguished from fibrous, carcinomatous, and lipomatous tumors, as also from indurated and enlarged lymphatic ganglia. As they occur in very marked preponderance below the level of the knees, and are for the most part single or relatively few in such situation, they can by their position alone be frequently differentiated from each of the new growths mentioned, no one of which occurs by preference upon the lower extremities. As they are, moreover, relatively late lesions of syphilis, a history of preëxisting symptoms of that disease can usually be obtained.

Erythanthema Syphiliticum.

Under this title, Dr. E. B. Bronson, of New York,¹ describes a condition observed by himself in syphilitic patients. Upon a well defined, crimson or livid, erythematous surface (face, palms, soles) appeared an abundant crop of pea-sized vesico-pustules, which were converted later into an exuding, whitish, elevated, and diphtheroid patch. The multiformity of the exanthem was characteristic. In parts it suggested the hydroa bulleux of Bazin; elsewhere, the dermatitis herpetiformis of Duhring. The fluid exudation that affected the face was not characteristic of the evolution of the palmar and plantar lesions.

Later, warty, papilliform lesions appeared over the face and neck, somewhat resembling secreting condylomata, and surmounting, for the most part, a dusky-red or erythematous surface.

The author regarded the exanthem as primarily a syphilitic product, but not pathologically or etiologically a true syphiloderm. Its origin was possibly similar to that of the angioneurotic, tropho-neurotic, or reflex phenomena of skin disorders in general.

Syphiloderma Infantile, Acquisitum et Hæreditarium.

Syphilis may be acquired by the infant and child at any period after birth, as, for example, by immediate contagion from the nipple of the nurse, or mediately, as by the use of utensils smeared with a secretion capable of transmitting the disease. Such acquired infantile disease displays for the most part the symptoms observed in adult years, except that the delicate and tender skin at this early period of life is apt to exhibit the moist and secreting lesions of syphilis. The mucous patch, the pustule, and the condyloma, are here more common than the papulo-squamous symptoms of the adult. Some influence is also exerted upon the disease by the dress, habits of life, and mode of obtaining nutriment, which are conditioned upon the helplessness of the young child. In this way the soiled napkin over the anogenital region, the warm covering of, and free diaphoresis from, the general surface of the skin, and the frequent contacts of the lips with the nipple, suffice to determine in special regions, particular local expressions of the constitutional vice. It is much less grave in character and portent than the inherited form of the disease.

Hereditary syphilis may be first displayed in infancy or early adult years, and is always strictly transmitted by inheritance from one or both parents. The consideration of the disease being in these pages limited to its cutaneous manifestations, it is first to be noted that the infected fœtus may be prematurely expelled with cutaneous symptoms displayed upon its surface. This generally argues in favor, either of intense syphilis in one or both progenitors, or, more commonly, of relatively recent infection of the latter. Under these circumstances,

¹ Medical Record, September 4, 1886, p. 253.

there are usually evidences of the death of the fœtus at some date prior to its expulsion, the skin being macerated and the epidermis raised from the corium in few or many bullous lesions, beneath which the derma exhibits a livid reddish or purplish hue.

When the infant is born with a clean skin, it may be shrivelled and emaciated, or fat and presenting the appearance of sound health. Soon after, however, cutaneous manifestations appear, usually not before the conclusion of the first month, more commonly during the second, very rarely after the third and fourth. The earlier the date of such explosion, the more intense as a rule is the evidence of the disorder. The first symptoms displayed are significant of visceral involvement, and are, in brief, those of marasmus. Emaciation progresses rapidly; the skin seems stretched unnaturally over the facial bones; the expression is that of physical distress; the cry becomes a fretful moan; the integument loses entirely the rosy hue of the healthy infant, and acquires instead a sallow or muddy tint; and very peculiar wrinkles or puckered lines radiate from the angles of the lips. Few observers have failed to notice the resemblance which then exists between the faces of these emaciated little creatures and those of the aged of both sexes.

In all this, however, there is absolutely nothing characteristic of syphilis, as distinguished from other wasting diseases of infancy. Chronic tubercular meningitis and the gastro-intestinal disorders of infancy in their extreme expression furnish a precisely similar picture. This is natural enough, since all depend alike upon a similar cause, failure of proper performance of function on the part of the viscera in consequence of pathological alterations.

The coryza of the syphilitic infant is, however, soon declared, and speedily gives a clew to the nature of the morbid process. The discharge from the nares, at first serous, later purulent, desiccates sufficiently to obstruct the nasal passages, or, in consequence of the tumid condition of the membrane lining the latter, is prevented from escaping. Often it is furnished by mucous patches forming on the Schneiderian membrane. At times, crusts form so as to accumulate externally about the nasal orifices, and then are seen to be similar to those which are apt to form also at the angles of the mouth. In this way the characteristic "snuffles" of the syphilitic infant is induced, in consequence of which it is obliged when nursing to release the nipple from its mouth, in order to respire, an act often accompanied by a hoarse cry. The breathing of such an infant, even when asleep, or awake and undisturbed, is always sufficient to arouse a suspicion as to the nature of the disease from which it is suffering. The mouth, larynx, vulva, and anus are often the seat of similar lesions, whose development into an obstructive tumefaction secreting more or less profusely, or into moist condylomata, will depend largely upon the seat and surroundings of the lesion.

The cutaneous symptoms of the disorder, presented usually at or about this time, are macular, papular, pustular, bullous, or furuncular, two or more of them being at times commingled, attesting thus the

identity of the disease with the polymorphic acquired forms of maturer years. Maculæ are early to appear upon the trunk, face, and extremities, usually of a livid reddish hue, commingled with papules, and indeed often occurring as the first manifestation of the latter. They are irregular as to shape, and though occasionally pinkish, discrete, circinate, and coffee-bean sized, often constitute a diffuse, coppery-red, or violaceous, glazed, or moist and secreting surface, affecting an entire region, as the neck, the trunk, or thighs and genitalia. Deep excoriations and even fissures occasionally form in these extensive patches, and the secretions may incrust them irregularly, the general aspect of the patch somewhat suggesting an eczematous condition, yet remarkably differing from the latter in color.

In hereditary as in acquired syphilis, the type of all the eruptive symptoms is to be sought in the papules which may spring from the maculæ described above, and develop into pustules, bullæ, or condylomata; and, in the former case, dull red or violaceous papules of lenticular size, occur either in asymmetrical or symmetrical arrangement, discrete or agglomerated in patches of infiltration. They may, upon the buttocks especially, scale at the apex; or, particularly, upon the palms and soles, constitute, by fusion a thickened desquamating epidermal patch; or, commonly about the ano-genital region, the interdigital spaces, the axillæ and face, become moist, and secrete a puriform mucus. By vegetation or hypertrophy, they develop into flat or fissured condylomata, smeared with an offensive, yellowish, or yellowish-white discharge, and vary in size from a coin to a lesion an inch or more in diameter, with corresponding variation in the degree of their elevation from the surface. The latter may be few or very numerous. Sometimes a child will appear to be well nigh covered with large, moist, secreting papules. The author has seen an infant with snuffles and maculæ of the trunk, having but a single condyloma of the anal region. Again, the papulo-condyloma may ulcerate deeply and crust. It should be remembered, in studying these symptoms from a verbal description, that they are those of a cachectic infant affected with a grave disease. Death often interrupts the sequence of the manifestations here described. This event is usually preceded by the signs of apparent amelioration, shrinkage of hypertrophic growths, and decolorization of hyperæmic lesions and patches. Of the other cutaneous symptoms of hereditary syphilis, vesicles are the rarest, the smaller being occasionally seen, having a conical apex, with serous contents, closely set together about the lips, and springing from a violaceous infiltrated patch. The resulting crusts never have the reddish-yellow tint of those observed in eczema, nor, after rupture, are they followed by serous oozing from a wounded epidermis. The larger lesions of this sort are usually transformations of papules which rapidly assume a pustular phase.

Pustular eruptions, in this form of syphilis, may be discrete or confluent, localized or generalized. They are particularly apt to occur in groups about the mucous outlets, with maculo-papular lesions developed elsewhere, and may result in ulceration, often after

development into bullæ with pustular or sanious contents. The resulting crusts are bulky and dark colored, and, especially upon the face, disfiguring. The subjective sensations are probably insignificant, since the child does not attempt to tear the surface, as in pustular eczema. The cachectic condition of the little patient, when these lesions are large and numerous, is usually pronounced. They may be seen in typical development by the side of the nail, occasionally involving the matrix, and productive, in this situation, of considerable swelling of the digit, with an ulcerative sequel, which commonly results in distortion, and ultimate loss, of the nail-substance. Onychia, however, may result from perverted nutrition of the part, with increase in its friability, loss of lustre, assumption of a dirty grayish hue, and phalangeal œdema. These changes are analogous to those resulting in loss of the hair where the follicles have been imperfectly nourished.

The furuncles which form in other cases are exaggerated manifestations of the same pyrogenic tendency in the skin of the infant, a complication common to syphilitic and other cachectic conditions in young children. They may be few or numerous, and are chiefly characterized by their indolence, the absence of laudable pus in their contents, the ulcerative condition left after their evacuation, and the bluish or purplish condition of the integument which surrounds their edges.

Bullæ in hereditary syphilis are early or late manifestations of the disease, and may be represented by a single lesion on the palm or soles (the site of their predilection), or constitute a symmetrical generalized efflorescence. They should be regarded as evidences of a grave form of the disease, being often the precursors of a fatal issue, as indicating a feeble resistance on the part of the epidermis to the fluid exudate furnished from the corium beneath. In severe cases, the bullæ are ill developed, and the integument will be seen to be marked here and there by small coin-sized and larger disks or plaques of macerated epidermis, separated from the derma by a thin film of serous, sanious, or purulent fluid, in quantity insufficient to raise the roof above the general level of the integument. When fully developed, there may be conical, rounded, flat, or quite flaccid, and surrounded by an infiltrated border of dark reddish or violaceous hue. Their color varies with the color of their contents. Their subsequent career is concluded by shallow or deep ulceration, the base secreting a sanious discharge. Crusts may form if the patient survive. A fatal termination of the disease is usually announced by their flattening or collapse. They may be commingled with pustules and maculo-papules, condylomata, mucous patches of the anus, mouth, and nares, but are somewhat different from the other lesions described in this, that they may constitute a uniform efflorescence, no other cutaneous symptoms being manifested. This is explained by the fact to which attention has been directed, that they represent the state of feeblest resistance in the epidermis, the fluid exudate of exceedingly low grade mechanically separating the rete from the tissues beneath.

Tubercles and subcutaneous gummata may develop in hereditary syphilis, but are usually late manifestations of the disease, one or more years elapsing before their appearance. Their behavior is scarcely different from that of those observed in the acquired forms, although the destruction wrought by their degeneration in very late manifestations may be of the most intractable type. Usually there is a preceding history of parental or inherited disease, and coincident symptoms or sequelæ of such, in the altered teeth, described by Hutchinson, of London, in an ancient keratitis, or in a hopeless form of surdity.

Mucous patches are very constant symptoms of the disease, and represent papules of the mucous membrane, which differ from those seen in the skin only because they are moistened, macerated, and flattened by juxtaposition of neighboring tissues. They are surrounded usually by a larid halo, and may have the pearly whiteness always seen when the epidermis of mucous membranes is detached wholly or partly from the corium; or may lose this protecting disk in shreds or patches, and show, beneath, an engorged, or ulcerated and secreting tissue. They may be isolated or broadly confluent; and oval, circular, or decidedly linear in shape; the last named appearance being characteristic of those existing at the angles of the mouth.

They are to be recognized as distinct from both the parasitic and non-parasitic forms of simple stomatitis or thrush, the former being due to the presence of the *oïdium albicans*. In both of the non-syphilitic disorders, the mouth of the child will be seen to be very generally, uniformly, and symmetrically involved, the circumscribed patches being distinctly discrete and resembling in color, soft whitish or yellowish flocculi of curdled milk. The diagnosis is always greatly aided by noticing the well-nigh constant occurrence of patches just at the angles of the syphilitic mouth, which latter has also the seamed and puckered appearance described above. Snuffles, syphilodermata, and marked cachexia, when established, will leave little doubt as to the nature of the malady.

The future of the infant affected with hereditary syphilis is not always as dark as might be gathered from what has preceded. In this, as in the acquired form of the disease, benignancy may be a conspicuous feature of the entire process. The evolution of the disease may be tardy; its symptoms few and unimportant; its amenability to judicious treatment speedily demonstrated. Still, the fact remains, that the disease when inherited is far graver than when acquired, the victim entering the world with its viscera and bones liable to profound pathological alterations.

Etiology.—Syphilis, in the course of which appear the syphilodermata, is produced invariably either by infection, accidental or intentional, or by the obscure influences of heredity. The methods of transmission may be immediate as in sexual congress, kissing, and nursing at the nipple, by which act the child may infect the nurse

with the secretion of the mucous patches in its mouth, or may, instead, receive the disease from the excoriations on the breast of the lactre. Or the disorder may result from the medium of utensils charged with an infectious secretion, such as the needles of the tattooer wet with saliva commingled with diseased mucus, or the lancet of the vaccinator covered with an intoxicated blood. Generally it may be said that all the discharging and moist syphilodermata are sources of danger to a sound individual, both in the acquired and inherited forms of the disease. By these and other similar methods, persons of both sexes, and of all ages, may become infected.

However begotten, the syphilodermata are yet not excluded from subjection to the long list of external irritants which may in turn annoy the skin. The influence of a hot bath, or the excitement and perspiration of the dance, will often invite to the surface a macular syphilide which might otherwise be less fully developed; and friction, as by the hat-band over the forehead, the cuff at the wrist, and the shoe over the foot, demonstrates its influence by daily examples of determination of the morbid process to special localities. The same may be said of filth, such as the feces on the napkin of the infant which frequently provoke in this region the vegetation of condylomata. It is a mistake to suppose that syphilis, and syphilis only, is responsible for the exanthemata of that disease in all shades, grades, and situations. Soap and water are as efficient in preserving the skin of the syphilitic as of the sound; and the infected tobacco-chewer pays a price for his nauseous habit. Poverty, misery, and wilful neglect or ignorance of the laws of hygiene, are responsible for a long and lengthening list of the complications of the disease.

Pathology.—The pathological anatomy of syphilis and the syphilodermata has been carefully studied by a large number of observers, including Virchow, Wagner, Cornil and Ranvier, Neumann, Auspitz, and Biesiadecki. It must be admitted that the result, even though it present a fair picture of the pathological appearances exhibited by the several lesions subjected to examination, is yet far from furnishing an explanation of the nature and peculiarly capricious career of the disease. Without stopping to consider, much less discuss, the numerous conflicting theories respecting the nature of syphilis, which the investigations of the eminent authors named have not yet succeeded in either disproving or establishing, it can be merely asserted to-day that the solution of this important question has not yet been reached. Under the microscope, it can be clearly determined merely, that the recognized processes of hyperæmia, exudation, hypertrophy, new growth, and degeneration (caseous, fatty, amyloid, atrophic, and necrotic) occur in syphilis as in some other disorders with cutaneous lesions; that the specific character of the disease is not betrayed by any specificity of elements or of their arrangement; and yet that every pathological process of syphilis bears the imprint of the malady whose influence it acknowledges. Here is a lesson certainly confirmed by clinical facts. With the possible exception of

the gumma, there are no cutaneous lesions of syphilis which are peculiar to itself, and yet there are certain modes of behavior by which each, when carefully studied, betrays its identity. It is then by the modality rather than by any essential character of the syphilitic process, that it is to be differentiated from all others.

The papule, the tubercle, and the gumma may be regarded as typical pathological developments of the disease, as they certainly constitute the basis of its common and important cutaneous manifestations. One of them indeed, the gumma, may develop in any organ of the body other than the skin. Under the microscope, these lesions are seen to be made up of a new growth whose numerous, small, rounded, or spindle-shaped elements, whether derived from connective tissue or outwandered leucocytes or both, and whether found, as they may be, in the rete, the corium, or the subcutaneous tissue, very probably represent transformation of protoplasm previously existing, or resulting from embryonal metamorphosis of such preëxisting elements. Kaposi well summarizes the chief peculiarities of this new growth, by remarking: First, that its elements are distinctly circumscribed and homogeneous, differing, the minutest papule from the largest tubercle, only in respect to volume; second, that they are inapt for permanent organization, but retrograde and disappear either by resorption or by suppuration; third, that they are remarkable for their tendency to coincident evolution and involution, usually in a centrifugal direction, the younger peripheral portions presenting the characters of recent infiltration, while the more ancient situated at the pathological centre, are earliest to disappear.

This new growth naturally plays a more important part in some lesions than in others. Scarcely discernible in the hyperæmia of the macular lesions, and well defined in the papule and its modifications (the tubercle, the condyloma, and the forming gumma), it is represented in the vesicle, pustule, bulla, and degenerating gumma by either a fluid exudate composed of granular, cloudy, and nucleated elements, or by a soft, succulent, grayish, or grayish-red homogeneous mass, yielding a scanty juice, and not yet completely transformed by degeneration to the fluid condition. Beneath and about any of these last-named lesions, the circumscribed new growth may lay a foundation or erect a wall, which unmistakably asserts the unity of all such processes.

Viewed comprehensively, the multiform developments of the syphilitic new growth are seen to be incontestably more rapid of evolution and involution than, in their average career, are all the neoplasmata. Sarcoma alone competes with it in this regard. Lepra, lupus erythematosus, lupus vulgaris, keloid, xanthoma, and the large majority of all forms of epithelioma outlive, as a rule, generations of syphilodermata. This relative rapidity of career has entailed upon the disease its possibilities in the direction both of benignancy and malignancy. Whether, as it may, it destroy life, or, as may also be the case, it so slightly interfere with health as well nigh to pass

unnoticed, in either event the total period of its activity* is relatively brief.

The demonstration of the bacillary origin of syphilis, as already stated is not yet complete. Every fact in its history, however, and the recent advances in the discovery of the part played by micro-organisms in the production of other diseases, point unmistakably to a parasitic origin of syphilis. There is reasonable ground for believing to-day that the disease belongs to the class of infectious granulomata, even if the conclusions of Lustgarten and Doutrelepont be not confirmed by further experiment, the crucial test being a series of productions of syphilis in unmistakably sound individuals, by infection with a product of bacilli obtained by cultivation.

Lustgarten first hardened sections of syphilitic lesions (initial chancres, papules, and gummata) in absolute alcohol and colored them in a solution of gentian-violet for twelve to twenty-four hours at the ordinary temperature and then for two hours at 104° F. The sections were decolorized by repeated washings in absolute alcohol, a one and one-half per cent. aqueous solution of the permanganate of potassium, and chemically pure sulphurous acid.

It is claimed that by the special method employed, the characteristic organisms were always recognized in syphilitic and never in non-syphilitic lesions. The bacilli were never free but always enclosed in cells of amœboid movement, resembling lymphoid cells. These bodies were straight, curved, or irregularly bent in rod-like forms, averaging three and one-half to four and three-tenths of a micromillimetre in thickness. Under objectives of low power they presented a uniform smoothness with occasional terminal bulbous expansions. The surface, however, viewed under a homogeneous immersion lens, appeared irregularly undulating and slightly notched, the bacillus or rod-like appearance, however, remaining distinct. Within each bacillus, separated from each other by spaces of equal length, were from two to four bright and colorless spores.

More recently, however, microorganisms, similar to those believed to be the sources of syphilis, have been discovered in the smegma preputii and other secretions obtained from the genital organs of non-infected persons of both sexes, thus confirming the belief that the specific bacterium of the disease has not been recognized.

Diagnosis.—The syphilodermata are to be distinguished from all other cutaneous eruptions by their general characteristics, and by the features peculiar to each lesion. It must not be forgotten, however, that these lesions are not essentially different in character from all others, but are to be recognized with ease or difficulty, according as they do or do not betray the syphilitic expression. No one, however expert in diagnosis, can always trust himself to recognize these special features by a study of the eruption only, at a given moment of time. Neither in respect to color, form, size, situation, disposition, or other peculiarity, do the syphilodermata exhibit an absolute difference from the non-syphilitic affections of the skin. It is therefore requisite in every case, to investigate in the fullest manner, the history of

the disease, of all prior skin lesions, of a primary sclerosis (when this can be obtained), of adenopathy, miscarriages, abortions, and disorders affecting other organs of the body, such as the bones, viscera, organs of sense, and the mucous surfaces. Often a single extra-cutaneous fact will be a valuable aid in establishing the diagnosis of syphilis. An "eczematous" infant, with snuffles and a hoarse cry, has been treated in vain by many a physician, otherwise capable of making a diagnosis, who might have been given a clew to the nature of the disease from which the child was suffering, if he had taken the pains to inspect the anus and question the father in private.

It is very necessary in this connection to lay stress upon the well-known fact that every syphilitic patient with a disease of the skin does not necessarily exhibit syphilodermata. The course of the disease is in many cases so protracted that patients have ample opportunities to contract other disorders, and their number is larger than is commonly supposed to be the case. They suffer most often from the medicamentous eruptions, especially those induced by the ingestion of iodide of potassium (q. v.); are, like other men and women, bitten by bugs and lice; and suffer from eczema, acne, psoriasis, and other non-venereal disorders. This is less true possibly of the innocent victims of the disease than of those guilty of sexual excesses in and out of the married state, many of the latter leading the most disordered lives, and exposing themselves to the ordinary causes of disease to a degree not noted in other cases.

It is always necessary, therefore, in making a diagnosis in a case supposed to be syphilitic, first, to determine *ab origine* the fact of syphilis, and, if that fact cannot be indubitably determined, to be careful that the statements of the patient be not allowed to bias the judgment in pronouncing upon any eruption present; second, supposing that such a fact is established by clinical proofs without reserve, to determine whether the eruption present is produced by the existing syphilis or some other externally or internally operating cause; and if this last be determined, to be careful in eliminating the syphilitic influence from its operation.

Ignored syphilis is usually severe; but it is without avail that disorders of a different character are treated by the methods useful in the former. Thousands are annually so mistreated who might be spared such a course. The frequent occurrence, after a suspicious exposure, of a balanitis, an attack of progeneral herpes, uninfected excoriations, blennorrhagic discharges, and even the appearance of molluscous tumors, warts, and parasitic cutaneous disorders upon the genital region, is a source of alarm and of fruitful error to the many rather than to the few.

On the other hand, the diagnostician must be ever on the alert to recognize the symptoms of the disease in those who least suspect it. Thus, married women complaining of a "humor of the blood," men who have been "over-heated, and broken out with a rash," and a long list of patients exhibiting upon their persons the symptoms of "salt rheum," "tetter," "scrofulous ulcers," and "erysipelas" are

those whose speedy relief will depend upon the skill of the practitioner in recognizing exactly the precise nature of the malady.

The diagnosis of the syphilitic lesions of the skin is a matter of the very greatest importance, inasmuch as the health, comfort, mental happiness, and domestic relations of thousands of men and women annually depend upon it alone. An error in either direction may involve the most serious consequences to both physician and patient. He is but poorly qualified to discharge the important duties of a general practitioner of medicine who has not carefully trained himself to establish the truth in these cases, irrespective of the diagnosis of the patient, and of all others who may have been consulted.

Treatment.—The syphilodermata are to be treated by topical applications intended to hasten their disappearance or involution, but as local manifestations of a constitutional disease, their management is largely that which looks to the relief of the latter.

The treatment of syphilis will, in the pages which follow, be described in outline, so far as it relates to the relief of the cutaneous lesions and of the systemic condition. The important modifications of therapy which are required in the management of syphilis of the osseous and nervous system, of the respiratory, gastro-intestinal, and other organs, it is scarcely necessary to remark, are fully described in the standard treatises specially devoted to this subject. Among them may be named, as of American authorship, the sterling works of Bumstead and Taylor;¹ of Van Buren and Keyes,² and of E. L. Keyes.³ Of those more or less recently published abroad may be named the standard treatises of Lancereaux;⁴ of Jullien;⁵ of Fournier;⁶ of Diday and Doyon;⁷ of Zeissl;⁸ and of Mauriac.⁶

The first and often the most important consideration for the practitioner who is in face of a syphilitic patient is the care of that patient's general health. Simple and natural as it may be to set down such an injunction in this connection, its importance rests upon the fact that it is too often neglected. Patient and physician are often respectively hurried into the precipitate ordering and swallowing of specific drugs, without regard to other as important details.

The author is in the habit of handing to the patient, at the outset of all treatment for syphilis, a slip of paper on which are printed in concise and simple terms a set of rules which should be observed during its continuance. For physicians who do not take similar precautions, it is advisable to enter rather fully into the explanation of certain details which the patient should be made to understand.

He or she, if an adult, should, as a rule, be informed of the nature of the disease recognized, since every infected patient has an interest in knowing such fact, and it has an important bearing upon

¹ The Pathology and Treatment of Venereal Diseases, Philadelphia, 1883.

² A Practical Treatise on the Surgical Diseases of the Genito-urinary Organs, including Syphilis, New York, 1874.

³ The Venereal Diseases, etc., New York, 1880.

⁴ Traité Historique et Pratique sur la Syphilis, Paris, 1874.

⁵ Traité Pratique des Maladies Vénériennes, Paris, 1886.

⁶ Leçons sur la Syphilis, etc., Paris, 1873. La Syph. Héréd. tard., 1886.

⁷ Thérapeutique des Maladies Vénériennes, Paris, 1876.

⁸ Lehrbuch der Syphilis, etc., Stuttgart, 1875.

⁹ Leçons sur les Malad. Vénér., Paris, 1883.

his or her relations to the uninfected. To every such person, with the assurance that the disease is often benign, and productive of little discomfort, and in any case curable, it should be stated that the affection is contagious, and capable of transmission to sound persons by physical contacts of various characters. The patient should be instructed as to the nutritious character of the diet he should select, and should be informed that an increase in weight, while subjected to treatment, is decidedly favorable in the matter of prognosis; that the starving and sweating processes so highly esteemed by the charlatan and the advocate of the virtues of the waters of certain resorts are relics of antiquity, as useless in fact as they are frequent sources of peril.

The bathing of the body is a matter of importance. Hot Turkish and Russian baths are, as a rule, to be interdicted, inasmuch as they tend to invite cutaneous hyperæmia, and thus to favor the occurrence of eruptions. Cool or tepid baths are to be employed sufficiently often for the purposes of cleanliness, and by the sponge rather than by immersion. Dry friction of the surface of the body daily may be ordered with advantage where the skin is still sound. The teeth, mouth, and gums require constant care. The use of the tooth-brush with cool water twice daily is a matter of importance, to be preceded for a time, when the gums at the outset are in a tender, fungous, or hæmorrhagic state, by gentle friction with the finger, covered by a handkerchief dipped in a weak spirit-and-water lotion, to which the tincture of cinchona and of myrrh may be added in any desired proportion. Tobacco in every form is, without any question, decidedly injurious. Often the patient should be sent early to a competent dentist for the extraction or filling of carious teeth, and the removal by the file or dental engine of all sharp projecting edges.

Malt liquors, wines, and spirits should be employed solely under the explicit direction of the physician. They are exceedingly useful in debilitated subjects of a certain class, and need not be unnecessarily prohibited *in toto* to those long habituated to their use. At the same time, an improper use of such stimulants is, it need not be said, in the highest degree harmful. When employed at all, they should be rigidly restricted to the dining-table and the hours of meals.

A compliance with the laws of hygiene is even more requisite for the syphilitic than the non-infected. Fresh air, social amusements, exercise, the regular routine of business life, or, when this has proved exhausting, the recreation of travel—the claims of all these need at times to be urged by the physician. With this the patient should be encouraged to free his or her mind from needless anxiety, and to avoid particularly the company and conversation of those similarly infected, whose opinions are based too often upon ignorance, or a knowledge of half truths. The literature of syphilis is, for a similar reason, to be eschewed, as the mass of patients, too many of whom purchase treatises on the subject, are able only to glean imperfectly the meaning of the authors consulted.

It should be a rule to urge married patients frankly to inform the partner, of the fact of infection, for the sake of both. When this advice is followed, much trouble is avoided for the future, and one of the obstacles to a completely favorable issue is at once set aside. In the author's professional experience, many instances have occurred in which the disruption of the conjugal bond resulted from infection of one, but usually of both parties; but it is a striking argument in favor of the policy here urged, that in this entire experience there has been no single instance in which a frank and honorable confession has been followed by such a consequence. It should be added that in no one of the "confessed" cases has there been subsequent infection of the innocent. It need scarcely be said that the larger number of these patients have been husbands. Recently infected young adults who have contracted a marriage engagement should invariably claim release from such a tie for the sake of all concerned. The syphilitic nurse must be taken at once from the sound nursing, and the child with hereditary syphilis be suckled only by its own mother. The latter, according to the law of Colles the exceptions to which are so few as to prove the rule, always enjoys immunity against the diseased mouth of her own child.

Turning to the consideration of the medicaments employed in syphilis, it is to be remarked at the outset that there is no routine plan of treatment which in every case can be advantageously employed. In no respect do physicians so differ from each other, judged by the standard of professional skill, as in their ability to use a single remedy with success. He who has the largest armamentarium is not always either the best equipped or the most successful. Mercury, iodide of potassium, iron, and quinine are the great remedial agents in syphilis, but they may also be used vainly by one man in the long effort to accomplish that which another achieves speedily and brilliantly by use of the same remedies, employed with greater skill.

Of the other substances vaunted as either advantageous or specific in the treatment of the disease, no one possesses any claim whatever to the confidence of physicians. Sarsaparilla, dulcamara, stillingia, guaiacum, tayuya, mezereon, and the long list of other vegetable preparations whose virtues have thus been extolled, are all as harmless in themselves as they are ineffectual for the relief of the malady.

Before proceeding, however, to assume the responsibility of directing a course of treatment for syphilis with remedies of acknowledged value, the physician will do well to remember that no two cases of the disease are precisely similar, and that there is the widest range between the most benignant forms encountered in private practice and the malignant cases that are seen in hospital wards. Some forms of the malady are so absolutely mild as to constitute an inconvenience merely; others so severe as to destroy life. It is an axiom in venereal disease, that more patients perish annually from blennorrhagia and its results, than from syphilis. There could be

no greater error than to treat any disease exhibiting so wide a variation in severity, by a uniform method.

Mercury, after the assaults upon it of generations of men of admitted wisdom and candor, stands to-day unrivalled as a remedy for the relief particularly of those stages of syphilis in which the skin is involved. Administered with skill, it can be given for years at a time with immense advantage to the syphilitic, who, during a well-regulated mercurial course, should gain in weight, improve in vigor, and exhibit a healthier color of the skin. No competent physician of to-day employs it in such a manner as to induce salivation or any other of its toxic effects. During the last twenty years the author has had the opportunity not merely of making large use of this drug in his own practice, but of seeing many patients treated by other physicians in a similar way. In about a dozen cases there were excessive toxic effects of the remedy, and in each the carelessness or ignorance of the prescriber was responsible for the result. It should be remembered that in every discussion of the merits of mercury in syphilis, both physicians and patients have been guilty of the ignorance or folly of ascribing to the remedy the disastrous effects of the disease.

Mercury may be given by the mouth, by inunction, by subcutaneous injection, or externally by the aid of the vapor bath. Decidedly the most popular method, and that productive of least inconvenience to all concerned, is the method by ingestion.

In the treatment of syphilis, the mild chloride, corrosive sublimate, and bichloride of mercury, together with blue mass, may be effectively employed. These preparations are, however, rather less adapted than others for continued employment during long periods of time, and are open to the objection of either readily undergoing rearrangement into more stable compounds of the metal, or of producing undesirable irritative effects. With the protiodide and biniodide of mercury, an impression can be produced upon the system which can be readily proportioned to the exigencies arising in every case, which can be sustained during that "chronic medication" which Fournier declares to be requisite in every chronic disease, and which can be exerted without fear of immediate or remote deleterious consequences.

Treatment of syphilis by the mercurial selected for use should, as a rule, be begun only at the moment of evolution of constitutional symptoms. The initial sclerosis of the disease is, to a remarkable extent, amenable to the action of the metal, but in the large proportion of cases will cicatrize, when in an ulcerative stage, without having recourse to general medication. The latter may be well reserved, as suggested by Bumstead and Taylor, for such primary lesions as are threatening in symptoms, and for such individuals as require or demand speedy cicatrization of their chancre, as, for example, those about to travel beyond the reach of medical assistance. Personal experience fully confirms the wisdom of the teaching which reserves specific medication till the second period of incubation has passed. No local or general treatment can avert either a mild or

severe explosion of symptoms after that period is completed. In the experiments made by the author, in order to determine this point, there was either the production of strikingly irritative effects, such as very marked relapse, or unusual increase in the volume of the initial sclerosis immediately before the evolution of the first syphilodermata, or a distinct obstinacy in the latter to the action of the medicament employed.

In the early stages of syphilis in adults, the protiodide of mercury may be named as one of the most trustworthy of preparations. Of all classes of adult patients, including strong males and delicate females, there are scarcely two per cent. who cannot take it, if the dose be proportioned to the individual susceptibility. It is usually administered in pill form, in doses of one-fifth (0.01), one-fourth (0.016), or one-third (0.022) of a grain, three times daily, combined with the extract of gentian. The dose may be gradually increased, according to the necessities of the case, from one-half (0.032) to three (0.266), and even four (0.332) grains in the twenty-four hours. Many of the gelatine-coated pills found in the market contain accurately divided doses of the salt. The sugar-coated pills of Messrs. Garnier and Lamoureux, containing each one centigramme of the protiodide, are efficient, and largely employed.

Commencing with a minimum dose, the remedy is to be steadily exhibited, and the daily quantity consumed very gradually increased, till the degree of tolerance of which the patient is capable has been ascertained. Should the stools become frequent, pain be excited, or a slight effect be produced upon the mouth, such as is indicated by a metallic taste, moderate increase in the quantity of saliva, or any noticeable degree of tenderness of the gums, the dosage is to be gradually diminished till these symptoms disappear. Often the withdrawal of a fifth (0.01) or a half (0.032) of a grain daily, will suffice to enable the patient to tolerate the quantity thus diminished. The medication is to be faithfully continued till the object in view is obtained, viz., relief of all symptoms of the disease.

Keyes's well-known, so-called "tonic treatment of syphilis" is based largely upon the plan whose outline is merely sketched above. By the method which this author has certainly popularized, the dosage is increased only on each third or fourth day, till irritative effects are produced, when, after an interval of two days, the quantity taken at the time of the production of such effects is reduced one-half to one-third. This reduced quantity is termed the "tonic dose," and is thereafter continued throughout the treatment in "nearly all conditions of health or disease."

This method of treatment is in many cases admirably effective and is eminently safe. Still, viewing the subject with the conservatism which its importance justifies and which a mass of clinical facts demands, it may be well doubted whether it is always proper to administer a mercurial for weeks at a time to a man in apparently

¹ Consult the interesting paper of the author in the *American Journal of the Med. Sci.*, January, 1876; also his latest exposition of his views in the *Philada. Med. Times*, November 25, 1882, p. 337.

good health. With the active measures at immediate control in the mercurial vapor bath, it is usually safe and not unwise to suspend temporarily specific medication of the patient who exhibits such amelioration of symptoms as to be free from external manifestations of the disease. Every syphilis has its periods of activity and repose. Such an hour of repose will be well employed in the administration of iron, which, as tending to relieve the distinct chloro-anæmia of the disease, has its claims to recognition in the list of "specific" remedies. No case of syphilis can be said to have been properly treated, in which this remedy has not been given for at least a part of the time during which the patient was under observation. The citrate of iron and quinia is an excellent preparation for this purpose, administered at the meal hours, in a small quantity of sound sherry wine; or the iodide of iron may be employed in syrup, or in the pills made by the formula of Blancard, or in Vallet's mass. In other cases, the muriated tincture may be employed, but the physician will always be cautious about ordering an acid preparation of any kind during the intervals of a mercurial course. There is no form of anæmia which responds more promptly to the chalybeates than does that produced by the syphilitic virus.

The biniodide may be substituted for the protiodide when, for any reason, it may be thought desirable, commencing with a minimum dose of one sixty-fourth of a grain (0.001), and increasing this gradually to one-fortieth (0.0016) or rarely to one-twentieth (0.0033), either in pill or solution. The average dose of one-fortieth (0.0016) of a grain in pill form, administered three times daily, soon after eating, is tolerated by the majority of all patients of both sexes without consciousness of unpleasant effects.

For those who prefer to use the rather more active and correspondingly dangerous salts of the metal, calomel may be administered in one or two grain doses (0.066–0.133) three times daily, in combination with an opiate to prevent its action on the bowels, or, as recommended by Peters, in one-tenth (0.0066) of a grain dose every hour. Small doses of blue mass or gray powder may also be employed. According to the traditions of the profession, the gray powder is most suitable for children and infants, but since the frequent discovery in the latter of the corrosive chloride, either as of early or late chemical production, it is less esteemed. The homœopathic first decimal trituration of calomel with sugar of milk, is a far more suitable compound. Corrosive sublimate in doses of from one-twentieth (0.0033) to one-twelfth (0.005) of a grain is exhibited in pill form or in solution; and is probably more generally employed in the treatment of syphilis than any other mercurial salt. The objections to its use are suggested above. Though constantly employed in the public charities, where it is furnished as a cheap and a convenient substitute for the more elegant preparations in the market, it is much less frequently ordered for syphilitic patients in private practice. When given in solution, it produces a disagreeable metallic

taste in the mouth, which some patients can perceive after the lapse of six hours.

With many authors of wide experience, it is customary to employ opium, either alone or in connection with the use of mercury, for the relief of ulcerative or other lesions of syphilis. Sometimes it is employed for the purpose of relieving pain, sometimes to prevent the cathartic action of the metal upon the bowels, and again because it is supposed to possess some power of arrest over the destructive action of the disease. It should not, as a rule, be exhibited when by reducing the mercurial or exchanging the latter for a ferruginous dose, the same result can be reached. Few syphilitic patients are in the end brought to the desired termination of the disorder, by the use of a remedy which interferes with assimilation and digestion; and such a remedy is opium in all its forms. Temporary advantage is often gained by its employment, but this may be more than counteracted by its ultimate effect upon the gastro-intestinal tract.

Mercury is also satisfactorily introduced by the method of inunction. The metal, when thus employed, is readily absorbed by the system, and its therapeutic value is no less evident. Inunction should be employed in every case which admits of it, since the gastro-intestinal tract is thus left undisturbed, and, further, the dose of any needed chalybeate or the iodide of potassium *per os*, can be regulated without increasing or diminishing the quantity of mercury in daily use. Mercurial ointment is commonly used for this purpose, but a much more cleanly substitute for it, is provided in the oleate of mercury in the strength of ten, fifteen, or twenty per cent. There is but little question that the oleate also is somewhat more readily absorbed from the surface of the skin. The ten per cent. oleate is in general to be preferred to the stronger preparation, as less liable to irritate the surface of the skin. From half a drachm to a drachm (2.-4.) of either the ointment or the oleate can be rubbed into the skin at night before retiring, and the part selected for inunction cleansed by washing in the morning. Both, if continuously applied to a single portion of the skin, are liable to produce a mild local dermatitis or eczema, and hence it is wise to select on successive evenings a fresh portion of integument for the local application, preferably that where the epidermis is relatively thin, as, for example, the flexor aspects of the joints. The patient can thus upon one evening anoint the internal faces of the thighs; upon the next, the sides of the chest; upon another, the loins, etc., taking care to avoid surfaces where an induced eczema is likely to prove especially annoying, such as the scrotum, the axillæ, and the groins. The oleate may in some cases be well rubbed into the soles of the feet previously soaked in warm water, after which the socks or stockings may be drawn over the feet for the night. In the case of infants, the inunction is well performed by the natural movements of the child, if a flannel swathing-band previously smeared with the oleate be wrapped about its belly, so that the mercurial comes in contact with the skin. Should local irritative effects be produced, these subside

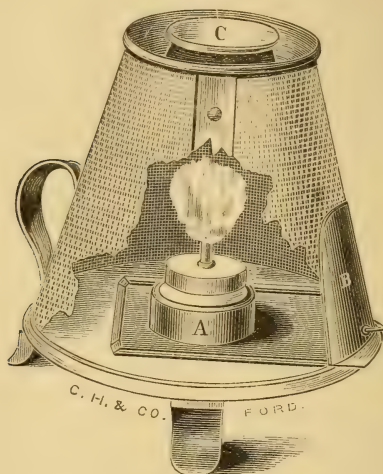
rapidly, as a rule, after a warm alkaline ablution followed with a bland dusting powder. Subsequently or even before such accident in the case of infants or patients having unusually sensitive skins, the oleate may be mixed with equal parts of vaseline, lard, or olive oil. As some patients become disgusted with this routine, it is well at the onset to flavor the substance selected for inunction with lavender, rosemary, or bergamot.

In this country too little attention has been attracted to the treatment of syphilis by mercurial inunction. With this in view the preceding paragraphs which describe the use of mercury by the mouth are to be understood as related in all cases to the employment of the metal by the skin. It is well to order inunction in all practicable cases; to save the stomach as much as possible; to continue with the oleate nightly, weekly, or less frequently so long as there is danger of relapse; and to adjust carefully the quantity employed to the exigencies of every case. In this manner patients may be relieved of all symptoms of the disease who have not during their treatment swallowed a single dose of mercury, and the permanency of whose relief may be tested during years of subsequent observation.

One of the most effective methods of administering the metal is by fumigation, in the mercurial vapor bath. It is employed by many syphilologists as the sole means of exhibiting the mercurial selected for use, but is, for the average of American patients, too inconvenient for continuous employment. It should be regularly employed first, in all cases where the earliest syphilodermata are intense, generalized, and particularly conspicuous upon the face; second, in all obstinate cases where the patients are not women nor cachectic subjects of either sex; third, at the outset of many "ignored" cases, where the syphilodermata, either more or less generalized, have proceeded to uninterrupted evolution; fourth, in the severe cases of patients coming from the country to the city, and able to remain but a brief time within reach of the advantages offered in the metropolitan centres. From half a drachm to a drachm (2.-4.) of calomel, metallic mercury, the bisulphuret, the black oxide, or the hydrargyrum cum cretâ may be employed for each bath. It is common to order from a scruple to a drachm each (1.-4.) of calomel and cinnabar. The patient is stripped of his clothing and seated in a chair, the patient and chair being completely enveloped in blankets, which are closely fastened at the neck of the bather. Beneath the chair is an alcohol lamp, surmounted by a tin vessel containing water in ebullition, the hot vapor of which in a few moments induces copious perspiration. When this result is obtained, the lamp is brought beneath a metal plate containing the substance to be volatilized. The patient remains exposed to the vapor about ten minutes after this process of sublimation is finished, and retires at once to bed without cleansing the skin, the fumigation being preferably conducted before the hour of sleep. In the morning, a bath may be taken for the purpose of cleanliness. It is more convenient in the generation of the vapor in this way, to make use of Mr. Henry Lea's safety fumigating lamp, but the materials requisite

for the production of all desired effects, with the exception of the alcohol lamp, can be procured of any good tinsmith. In the city, male patients are often sent to the bath-houses, where the fumigation is conducted in the daytime; and rarely experience as a consequence unpleasant effects, such as are popularly associated with "taking cold" after exposure to the action of mercury. In the most of these establishments, provision is made so that the head also can be exposed to the mercurial fumes, respiration being conducted through a tube in connection with pure air, a provision useful in certain cases of emergency; and only "emergency cases" should be required to resort to such measures.

FIG. 68.



Lea's lamp for fumigation.

The happy effect of the mercurial vapor bath is often marvellously rapid. A generalized syphiloderm may become well-nigh indistinguishable upon the surface after four baths at intervals of two days each. With this potent agency at hand, it can be well understood how the skilled physician can afford to watch his syphilitic patient from week to week, taking a dose of iron internally and employing inunction externally, the few lesions fading slowly from the surface, all fears quieted, and the nutrition sustained at a high grade. In comparison with this combined method, the swallowing of blue mass, or calomel and opium, should be regarded as a more clumsy and dangerous procedure.

The hypodermatic injection of mercury, largely popularized by

Lewin,¹ though very frequently employed in Europe in the treatment of syphilis, is open to the serious objection of requiring the aid of the physician for the administration of each dose. It is an efficient, speedy, and safe method, but will probably always find largest favor in the treatment of patients in hospital, who are there completely subject to the orders of their medical attendant. At the site of the injections, too, not rarely abscesses have formed. One-twelfth (0.005) or one-eighth of a grain (0.008) of corrosive sublimate, dissolved in ten or fifteen minims of distilled water may be injected at a time, the operation being repeated upon about twenty occasions. Bamberger, of Vienna, has reported favorable results after the injection of an albuminate or a peptone of mercury, thus attempting to avoid the danger of localized abscesses, and insuring speedy absorption of the metal. All formulæ, however, proposed for preparation of solutions of this character have hitherto proved imperfect, both in consequence of failure to obtain a pure mercuric albuminate, and also from failure of permanency in the solution. Staub's formula, the result of experiments made by Hepp,² may be taken as a sample of the rest :

Hydrarg. chlorid. corros.	gr. xvij;	1	25	
Ammon. chlorid.	gr. xvij;	1	25	
Sod. chlorid.	℥j;	4		
Aq. dest.	f℥iv;	128		M.

Dissolve, filter, and add the white of one egg in distilled water sufficient to make (128.) ℥iv; fifteen minims of the solution contain about one-twelfth of a grain (0.005) of the sublimate.

Ptyalism, stomatitis, fetor of the breath, or a fungous condition of the gums with inappetence and other characteristic symptoms of the ill effects of mercury, including all grades of gastro-intestinal disturbance, are rarely seen in modern practice, and should never be permitted to occur in a properly regulated mercurial course. When they are produced, the tongue projected from the mouth is usually tumid, and exhibits at its lateral borders the imprints of the inner faces of the molar teeth. Its surface is also covered in various degrees with a thin, dirty-grayish coat; and the odor of the breath is peculiarly offensive, being often noticeable at a distance of several feet from the patient. In such cases, the food should be liquid and nutritious; hot and cold drinks alike should be scrupulously avoided; and the mouth frequently cleansed with washes containing dilute liquor sodæ chlorinatæ, or the chlorate of potassium, or very weak carbolic acid in solution. Internally, the citrate of iron and quinia may be often used with advantage; and, in particularly severe cases, the chlorate of potassium to the extent of a drachm (4.) daily. The compressed tablets of this salt, each containing five grains (0.33), are available for this purpose, being slowly dissolved in the mouth, the medicated saliva and mucus being then well diffused over the inflamed buccal membrane, tongue, and fauces. The mercurial is to be suspended in

¹ Die Behandlung der Syphilis mit Subcutaner Sublimat-injection, Berlin, 1869; also translated by Proegler and Gale, Phila., 1872.

² Traitement de la Syph. par les Inject. Hypoderm. de Sublimé. Thèse de Paris, 1872.

all cases, and iced water to be interdicted, gangrene having followed its use in a few cases. In milder forms, the tincture of myrrh and of cinchona, diluted with sweetened water, or honey and water, will be sufficient for local medication of the mouth.

Iodine is chiefly employed in syphilis in the form of the iodide of potassium. It possesses some value, without any question, in every stage of syphilis, and is thus indiscriminately used by many practitioners. Its value, however, in late secondary and tertiary, is incontestably greater than in the earlier lesions of the disease, and its use should be largely restricted to the particular periods in which these manifestations appear. Every prudent physician will hesitate before ordering, for a disease exhibiting cutaneous lesions, a remedy which will positively produce cutaneous lesions in the majority of all patients ingesting it. In this connection the reader will do well to consult the chapter on dermatitis medicamentosa, in which the various eruptions produced by this drug are recorded. Thoughtful men are beginning, in the light of the present knowledge upon this subject, to ask, to what extent the syphilodermata have been in the past aggravated or obscured by this remedy. He would be indeed bold who would attempt to prove that the medicamentous eruptions thus excited have not, in the past, figured largely in the catalogue of the syphilodermata.

On the other hand, the value of the remedy, properly adjusted to the age and other conditions of the disease, is more than incontestable, it is peerless in its special field. Whether given alone; or by the so-called "mixed" treatment in combination with mercury; or administered internally while a mercurial is introduced by the skin; or exhibited, lastly, by alternation with the metal, in each it finds a special value, and may be simply indispensable. It may be given in doses of from five grains (0.33) to a drachm (4.) three or four times daily after eating, well diluted with water. The larger doses should be invariably reached gradually; should never be employed except by special order of the physician, and when the patient is within easy reach of the latter; and should always be ordered with the understanding that the patient should diminish or suspend treatment in case of unpleasant results. The symptoms of iodism, other than the production of cutaneous lesions, such as coryza, cedema of the lids, and faucial irritation, are apt to be the result of the first few doses ingested, and often bear no relation to the size of the latter. One or two grains (0.66-0.133) will, in certain cases, be sufficient to produce the most disagreeable effects which, if they are observed before the remedy be suspended, may not return with even the largest doses. In a few cases, the iodide of potassium produces violent toxic effects in any dose, owing to exceptional idiosyncrasy. The author has met with several such cases, and has had one patient in his charge suffering from an ulcerative tubercular syphiloderm of the nose, who was quite unable to tolerate the drug in any form. Both the chloride of ammonium and carbonate of ammonium are recommended for use in combination with the iodide of potassium, as

increasing its efficiency. The iodides of sodium, ammonium, and lithium possess also, without question, some influence over the disease, but are for most cases less efficacious than the potassium salt. Of the three named above, the iodide of lithium is apparently most prompt in its effects.

There is no combination of mercury with the iodide of potassium which is employed more frequently than the well-known "sirop de Gibert," which though first popularized in the St. Louis Hospital, of Paris, has been since extensively employed in this country. It has been slightly modified to suit the varying tastes of many surgeons. It is often ordered in the following formula :

R. Hydrargyri biniodid.	gr. ss-ij ;	033-13	
Potass. iodid.	ʒ ij-vij ;	8-32	
Gentian. syrup. (vel	} āā fʒij ;	64	M.
syrup. glycyrrhiz.)			
Aq. dest.			
Dose. A teaspoonful in water after eating.			

The syrup of liquorice disguises the taste of this combination better than most of the other syrups used. With the dosage carefully regulated, a few drops (ten to fifteen) may be administered with advantage to children.

The following are indications for the use of the iodide of potassium either alone or by the so-called "mixed" method in the treatment of syphiloderma : The occurrence (1) of late, tubercular, gummatous, or ulcerative lesions ; (2) of formidable symptoms in other portions of the body concurrent with early or late, mild or severe syphiloderma, as, for example, grave ulcerations of the velum or fauces with a symmetrical macular eruption, or coincidence of a generalized pustular or papular syphiloderm with hemiplegic, aphasic, ocular, or renal complications ; (3) of early or late manifestations which either assume the so-called "galloping" type, being rapidly succeeded by more and more formidable symptoms, or which exhibit the capriciousness of the disease in a reversal of the usual sequence of evolution, as, for example, when symptoms usually counted as late phenomena, occur within a few weeks after infection and are followed by the early symmetrical rashes ; (4) of early or late symptoms occurring in cachectic, strumous, or otherwise debilitated patients. The author has treated eleven tuberculous patients infected with syphilis ; and this experience has led to the belief that in all such cases it is imperative to dispense with every mercurial dose possible. Mercury is assuredly *not* a tonic in tuberculosis commingled with syphilis.

The local treatment of the initial sclerosis of syphilis by complete excision, lately revived by Auspitz, has been practised since the date of his paper in 1879, by Kölliker, Zeissl, Leloir, Chadzynski, Mauriac, and others ;¹ and the result has proved conclusively that such operative interference furnishes no bar to constitutional infection. Chancres should not be destroyed by caustic agents of any

¹ See Keyes's later communication on this subject, l. c.

character, as the latter are liable to induce either irritative or inflammatory effects which may be followed by denser induration. Ointments, as a rule, are also objectionable, exception being made in the case of hæmorrhagic lesions when the removal of an adherent dressing is followed by unpleasant consequences. Cleanliness with soap and water is of chief importance. After each local bath the parts may be dusted with a dry powder such as iodoform, iodol, calomel, zinc oxide, hydronaphthol, or starch; or dressed with a soft piece of lint saturated in the *lotio nigra*, or even better a spirit lotion containing tannin and carbolic or boric acid. Opiated washes may be requisite in all painful and ulcerative lesions. When a phagedænic tendency is displayed, deep cauterization may be required; and the subsequent local employment of solutions of the potassic permanganate, two to ten grains (0.133–0.666) to the ounce (32.) of water.

When a primary venereal sore of any character (the initial sclerosis of syphilis or the chancre) actually falls into gangrene or becomes phagedænic or, even in the absence of both of these calamities, extends rapidly in depth or in superficial area, cauterization should not be longer tried. The most effectual treatment of these complications in the genital region, is by the employment of the continuous hot water bath, aided by antiseptis. The patient remains seated in the bath (the water being of the temperature most grateful to the surface and with great care maintained at that degree of heat) throughout the day, or, in formidable emergencies, if carefully watched, by day and night. The bath is left by the patient only for the purpose of evacuating the bladder or rectum. Granulation and repair speedily set in. The parts are well dusted with iodoform or iodol, whenever the patient leaves the water. By this invaluable means, the author, in both hospital and private practice, has succeeded in obtaining cicatrization of extensive ulcers which had reached over the penis half way to the pubic region.

Local treatment of the syphilodermata may be demanded, either by reason of their appearance on exposed surface, such as the face and hands, or by reason of their obstinacy or threatening character, as when they are ulcerating rapidly. Macular and papular lesions of the face may be treated by local applications of the five per cent. oleate; mercurial ointment, one to two drachms (4.–8.) to the ounce (32.) of cold cream or vaseline; the red oxide, two to four grains (0.133–0.266) to the ounce (32.); or the ammonio-chloride, half to one scruple (0.666–1.33) to the ounce (32.) of ointment. Lotions of the bichloride, one to two grains (0.066–0.133) to the ounce (32.) of cologne, are also efficient. These preparations will be found much more valuable if used at night before retiring, and left upon the face during the hours of sleep. Each is well preceded by hot bathing of the face for several minutes, as in the preparatory treatment of the same region in *acne papulosa*, and indeed the sulphur preparations employed for the relief of that disease, will at times be found useful also in the local treatment of the syphilodermata.

The hot ablution is particularly useful in the treatment of the

scaling and frequently fissured lesions of the palms and soles, the pain of which in severe cases, is greatly alleviated by this treatment. After the epidermis in these parts has been well macerated, the hands or feet should be thoroughly dried, and the mercurial, tarry, or other salve well rubbed in. The glove or stocking should be then drawn over the part.

Secreting condylomata, flat papules, vegetations, etc., also require bathing in soap and water, especially when situated at the mucous outlets of the body or on the scalp. When the secretion is offensive carbolic acid, thymol, or chlorinated soda should be added to the lotion. Cleanliness is indeed more essential to the syphilitic patient, man or woman, than to the healthy. After such cleansing or disinfecting ablution, the parts should be dressed with a powder, such as dry calomel, iodoform, iodol, hydronaphthol, bismuth, the zinc oxide, salicylate of soda, or starch. Vegetating lesions of these regions may require also pencilling with a crayon of the nitrate of silver. Ointments, as containing grease, are decidedly objectionable for this purpose.

Crusted and ulcerative lesions, large or small, are to be treated in accordance with general principles. Crusts should always be removed, either by the oil and soap and water treatment, or by the dermal curette, after which the underlying ulcers should be thoroughly cleansed, pencilled with nitrate of silver, filled with powdered iodoform, iodol, or calomel, or touched with a five to twenty per cent. solution of carbolic acid, and then dressed with a dilute ointment of the nitrate of mercury, one to two drachms (4.-8.) to the ounce (32.). Large syphilitic ulcers are often encountered on the surface of the lower extremities, especially the legs, and in this situation elastic compression by the rubber bandage will greatly accelerate their cicatrization.

The syphilodermata are in general particularly amenable to the action of the mercurial vapor bath, which may be regarded as exerting upon them both a local and constitutional influence. Those existing upon the face are thus benefited by exposure to the metallic vapor in the "head-piece" arrangement already described. The patient may also less comfortably avail himself of the same local treatment, by holding the breath and exposing the head and face for a few minutes at a time to the fumes of the mercury beneath the blanket, in the plan described as practicable at the bedside.

It is within reasonable bounds to say, that the syphilodermata, if treated locally by the measures described as useful in non-syphilitic cutaneous affections of similar type, will always proceed to a satisfactory involution, if the general treatment of the patient is at the same time skilfully ordered.

Prognosis.—The prognosis of syphilis may be said to be in general favorable, the popular opinion on the subject being at variance with fact. Benignant syphilis may even disappear without treatment.

Malignant forms of the disease may, but rarely do, destroy life. The element of treatment, both as to the character of the latter and the period of its continuance, enters more largely into the estimate

upon which a prognosis rests, than in most other disorders exhibiting cutaneous symptoms. The syphilis which is untreated, whether because of a failure to recognize its real character, or of ignorance, poverty, neglect, or extravagance in dissipation, is usually grave. The same may be said of syphilis occurring in strumous, tuberculous, and cachectic subjects, those enfeebled by age, by other diseases, by chronic alcoholism, or by sexual excesses. Hereditary syphilis is by far the gravest form of the malady, not merely because of the tender age of its victims, but also because the latter, at the earliest period of their lives, find themselves burdened by a disease which may first attack organs essential to life.

The majority of adult American patients sooner or later get rid of all active manifestations of the acquired disease, marry, and beget in the end sound children.

Chancroid.

This term has been very generally adopted in this country for the purpose of designating the virulent, local, contagious ulcer of the genitals, designated also as the "simple," "soft," "non-infecting" chancre, the *chancrelle* of French authors. It has no relation to syphilis, nor to the neoplasms with which syphilis is commonly classified. As it is, however, a disease with which the initial sclerosis of syphilis may be confounded, and is also, not merely a venereal lesion, but one which may be encountered upon the skin as well as the mucous surfaces, it is briefly described in this connection.

Chancroids present as distinct a uniformity of feature as the lesions of vaccinia or of herpes zoster. They are thus stamped with special and readily recognized characteristics, differing in this respect from the various modes in which the first lesion of syphilis may declare its nature. The virus of the disease, for such it must be termed, is one *sui generis*, and derived exclusively from lesions of like character. That virus is contained in a purulent secretion, and is capable of transmission by inoculation and auto-inoculation. After such successful inoculation, there is no period of incubation. The results of experimental generation of the virus in human subjects, indicate that the pathological process which it awakens can be determined within twenty-four hours after its introduction within the skin. At times, after accidental inoculation, eight and ten days elapse before the lesion of the disease is manifested, cases where presumably the virulent secretion has remained pocketed in the orifice of a follicle or a fold of mucous membrane, where its irritant effects have finally opened an avenue for its deeper ingress. When typically developed, the chancroid is seen to be a pustular lesion, frequently multiple, of roundish outline, beginning as a pin-head sized, turbid, vesico-pustule, rapidly enlarging to a pea- or bean-sized, well developed, projecting, yellowish, globoid, elevation of the epidermis, filled with greenish-yellow pus. When located in furrows or depressions of the surface, it may have a linear, oval, or even a dumb-bell

shape, the latter in consequence of its extension from a sulcus to overlying folds.

Clinically, the roof-wall of this pustule is not frequently encountered, the lesions from the first exhibiting the ulcers from which the pustules described above invariably rise. These ulcers vary with the shape of the superimposed pustules, being round, ovalish, or linear, occasionally irregular in outline, with sharply defined or cut edges; uneven, pus-bathed floor; faint pinkish areola; supple, non-indurated base; abundant puriform secretion; and are accompanied by pain or not, according to the degree of inflammation present. In consequence of the auto-inoculability of the discharge, the ulcers frequently give rise to others in the vicinity, as when the prepuce lies in contact with chancroids of the glans.

The ulcers thus presented usually attain an average size of a pea or bean in the course of from ten to fourteen days; then remain in an indolent and suppurative condition, showing no tendency to heal for a fortnight or three weeks; and finally granulate, exhibiting the ordinary phases of repair; the resulting cicatrix being transitory or, more often, indelible. In exceptional cases the ulcer spreads widely. In the groin, it may attain a diameter of several inches; its floor secreting scantily; its edges, lurid, undermined, purplish, or ragged; its color, reddish, bluish, purplish, or leaden; fistulous tracts and sinuses filled with an ichorous sero-pus, radiating in dependent situations; its base, densely indurated; its career, prolonged for years, and inducing finally a systemic cachexia not different from those observed in all chronic ulcerations of severe grade. In yet other cases, the occurrence of gangrene, or phagedæna, changes the features of the lesion to those of other ulcers undergoing similar metamorphosis.

Chancroids occur upon all exposed mucous surfaces of the genitalia of both sexes, upon the integument of the penis, scrotum, labia, thighs, fingers, perineum, peri-anal region, and, very rarely indeed, upon the face. In consequence of their tendency to relapse, abundant contagious secretion, and auto-inoculability, they are more frequently encountered than the primary syphilitic lesion, among the filthy, the poor, and the classes that frequent hospitals and dispensaries. Among the wealthy, the well-to-do, and the cleanly, this order of frequency is reversed.

The chancroid ulcer is also much more frequently complicated by surgical accidents than is the infecting lesion of syphilis. This is partly due to the prevalence of an ulcerative type in all its manifestations, and in part to its situation. Thus it is often accompanied by severe inflammatory symptoms, which may be aggravated both by phimosis and paraphimosis, occurring with stenosis of the preputial aperture, or with a long, lax, and redundant foreskin. Phagedæna is also a formidable complication, whether of sloughing or serpiginous tendency, the lesion in each case losing its chancrous characteristics. It is evident also that the disease may coexist with others of a different character. Thus a single point may be simultaneously inoculated with chancroidal and syphilitic virus; the former, without an incubative

period, followed rapidly by a pustular or ulcerative lesion; the latter, after its incubation is complete, producing the characteristic symptoms of an initial sclerosis. Chancreoids may also be found coexisting with secondary and tertiary syphilitic lesions of the genitals, with vegetations, with blennorrhagic discharges and balanitis, with pediculi of the pubes, and with herpes progeneralis. Patients of the class exhibiting these lesions, not infrequently present themselves at public dispensaries with three or more of these concurrent disorders.

One of the most serious complications of the chancreoid is its association with a specific lymphangitis, peri-adenitis, or adenopathy. In such case, the lymphatic trunks connected with the lesion become inflamed, indurated, and irregularly corded, with the overlying integument often œdematous, reddened, and painful. The chancreous process in these vessels rarely terminates by suppuration. The bubo of chancreoid is more common, and may be either a sympathetic adenopathy, resulting from the severity of the process at the site of the lesion, or virulent and due to the transmission of an inoculable pus to one or more of the glands in near connection with the source of the trouble. These gland complications may coexist in one person, in men more often than in women, and in about one of each four or five cases presented to observation. When inoculable pus has been formed in a neighboring gland, the latter is at once converted into the seat of an abscess, the pus of which, whether evacuated spontaneously or by the knife of the surgeon, speedily inoculates the lips of the wound through which exit has been obtained. The wound and contiguous abscess cavity then form a large chancreoidal ulcer, usually inguinal in situation, as the glands in this locality are nearest the most frequent seat of the lesion. Such an inguinal ulcer discharges a greenish-yellow pus, often commingled with blood; its borders are undermined, thin, livid or purplish, and ragged; its floor is irregular, sloughy, and often covered by nodules representing the débris of glandular structure; from it depart sinuses traversing the tissues in the vicinity, often downward to the thigh, occasionally upward over the belly. When occurring in strumous and cachectic subjects, or when long neglected or mismanaged, the resulting disorder is one of the most serious character, and may surpass in duration and severity certain of the varieties of lupus and epithelioma. The author has had under his charge a man, the skin of whose right thigh, from the groin to the knee, was completely riddled by sinuses resulting from a chancreoidal bubo which had occurred several years before. A few years ago, the author was called in consultation to visit a woman in wretched health with an indolent ulcerative lesion of this sort in the right groin, which had lasted for five years. Despairing of relief, and before a change of treatment could be instituted, she hanged herself by the neck till she was dead.

Facts of this sort have an important bearing. It is true that syphilis is a constitutional disease, and usually occurs but once in a lifetime. It is equally true that the chancreoid is the evidence of a local and non-systemic disorder, producing constitutional effects only

as may all other local affections of chronic course and severe grade. But it is a grievous blunder to suppose for these reasons, that the latter is the milder of the two maladies. Many of its consequences are very much more severe, and some of them even more malignant, than the average of syphilitic explosions, and even, as indicated above, worse than some forms of other diseases usually counted as malignant. Greater attention should be generally directed to the truth respecting the comparative gravity of the two diseases, as there is widespread ignorance of the real fact.

Chancroid is to be distinguished from syphilitic chancre, but no skill, however great, and no experience, however wide, will enable the diagnostician, even when typical chancroid is present, to assert that syphilis will not follow, until the longest incubative period of the initial sclerosis of the last-named disease has elapsed without production of suspicious symptoms. The rule which necessarily follows is imperative, and, being too frequently ignored, a great deal of bitter disappointment on the part of the infected individual, and of keen mortification on the part of the physician, has naturally resulted. NO PATIENT SUFFERING FROM A CHANCROID CAN BE SAFELY PROMISED IMMUNITY AGAINST SYPHILIS, TILL TWO MONTHS AND A HALF HAVE ELAPSED SINCE THE DATE OF LAST EXPOSURE. Subject to this essential reserve, the diagnosis rests upon the pustular, ulcerative, and discharging features of the chancroid, its failure to indurate at the base, its auto-inoculability, its appearance without previous incubation, its more formidable localized expression of disease, and the characteristics of the accompanying adenopathy. The short-lived, superficial vesicles of herpes progenerialis, often accompanied by tingling and painful sensations, with sequelæ in the form of equally superficial, epidermal excoriations, are not to be confounded with chancroids; and yet it must be remembered that these lesions may also precede or accompany any form of venereal disorder. Chancroids are also to be distinguished from secondary and tertiary lesions of the genitals, and from non-syphilitic vegetations and molluscum epitheliale of the same region.

The pathology of the chancroid, though illustrated by the researches of Biesiadecki, Auspitz, and Unna, is yet not understood to an extent that will explain its specific character. Anatomically, there is disclosed by the microscope a uniform, dense infiltration of the corium with elements which undoubtedly represent inflammatory metamorphosis of the connective tissue of the derma; degenerative changes where the ulceration has proceeded superficially; enlargement of vessels from thickening of their walls, often with diminished lumen; and relatively intact rete and corium at the lateral borders of the ulcer. This fully confirms the inferences suggested by a clinical study of the disease. Many roundish, circumscribed, clean-cut ulcers with purulent floors occur upon the skin, which bear no relation to the chancroid disease. It is the history and career of the latter, which stamp it with an individuality of its own. It is not the form and

appearance of its pus elements, but their power and potency, which make them singular.

The routine treatment of chaneroids is by destructive cauterization with nitric or sulphuric acid. Keyes recommends a previous application of pure carbolic acid, in order to benumb the part and render the subsequent application less painful. If employed at all, the latter should be carefully wiped from the sore before the subsequent cauterization, as the two acids will explode if suddenly united. As the slough separates, the ulcer may be dressed in accordance with the general principles governing the treatment of simple granulating wounds. Vinous, carbolated, and opiated lotions, soothing powders of iodoform, iodol, calomel, bismuth and starch, simple unguents, and the interposition of a pledget of borated cotton between all affected and sound tissues, these in most cases suffice to insure relief. Pencillings with the nitrate of silver, though ineffective for the purposes of cauterization, often answer a good purpose in hastening repair. The prepuce may require division or circumcision.

For the grave and extensive ulcerations, accompanied or not by phagedæna or gangrene, there is no treatment at all comparable in value with the hot-water bath of an average temperature of 98° F. For the details of this method, the reader is referred to the paragraph devoted to the treatment of syphilitic chancre.

Phimosis and paraphimosis, when complicating chaneroids, require the surgical treatment appropriate for the relief of those conditions. For the accompanying adenopathy in chaneroid disease, before suppuration has occurred, rest is essential, with laxatives internally and gentle local compression. When there is great heat and tenderness, a few leeches may be applied. After pus has formed, it may be evacuated with the aspirator-needle, or by a free incision in the long axis of the swelling. The resulting ulcer is to be dressed and treated as a large chaneroid. Constitutional treatment by iron, quinine, cod-liver oil, and the employment of a generous diet with milk, malt liquors, or wines, is often required in broken-down and debilitated patients.

The prognosis, in uncomplicated cases, is generally favorable. The scar left by a suppurating gland in the groin is indelible, but becomes less and less conspicuous with years. Sloughing and gangrenous sores usually leave deforming cicatrices, especially when occurring at the apex of the glans, to which they are apt to give a peculiarly truncated shape. A just reserve should be made in all cases complicated with syphilis or extensive fistulous sinuses; the latter, as described above, often persisting for years.

Lepra.

Gr. λεπρός, scaly.

Lepra is an infectious, parasitic disease, of exceedingly chronic course, capable of involving all of the organs and tissues of the body, characterized by cutaneous pigment alterations, disordered or abolished sensation, tubercles, or other circumscribed or diffuse infiltrations, bullæ, ulcers, cicatrices, atrophies, destruction of deep tissues, loss of the appendages of the skin, and the ultimate production of a cachexia which usually terminates fatally.

Symptoms.—Leprosy has also been termed ELEPHANTIASIS GRÆCORUM, LEONTIASIS, and LEPRA ARABUM. In whatever form it may be ultimately manifested, its appearance is usually preceded by the prodromic symptoms generally recognized as the precursors of severe constitutional disease. These are: anorexia; chills, alternating with mild or severe febrile attacks; depression; gastro-intestinal disturbance; and insomnia. Their duration is exceedingly variable; in some cases, patients will remember that these or similar symptoms preceded for years the earliest outbreak of the disease. In yet others, but a few weeks' interval occurs between the prodromic and successive stages of the disease. It is worthy of note that the character of the former furnishes no clew to the severity and type of the latter.

The earlier cutaneous lesions of leprosy are tubercular, macular, or bullous. These may be coincident or successive, or one or two of these types may so far predominate that another may be either altogether wanting, or possess, in the general pathological history, but a trifling significance. It has thus been customary to make an entirely artificial distinction between cases of leprosy, by assigning them to three varieties, tubercular, macular, and anæsthetic. It will be understood, then, in separately considering these three forms, that the distinction between them is useful simply for the purposes of classification; that mixed cases of the disease occur which it would be difficult to assign to either variety exclusively; and that each merely represents a predominance of certain lesions at one pathological epoch. It should be noted also that the symptoms of leprosy are particularly remarkable for their polymorphism; a wide variation often existing between the character of two or more lesions which at any given moment are apparent. This is largely owing to the fact that leprosy is a general and constitutional disorder, the cutaneous symptoms of which are simply its surface markings.

[A.] Lepra Tuberosa.

Tubercular leprosy commonly begins in the skin with macular lesions. These are bean- to tomato-sized, reddish, brownish, or bronze-hued patches; roundish, oval, or irregular in contour; and occurring upon the face, trunk, or extremities. The skin covering

these is either smooth and shining as if oiled, or moderately infiltrated and elevated.

After a period ranging in duration from weeks to years, tubercles rise from these maculations, varying in size from a pea to a nut, though they may be as large as a tomato. They are yellowish, reddish-brown, or bronzed in color, often shining as if varnished or oiled, covered with a soft, natural, or slightly desquamating epidermis, roundish, or quite irregular in contour, and either isolated or grouped. Numbers of very small and ill-determined nodules may often be recognized by careful examination of the skin in the vicinity of those fully developed. They may be either cutaneous or subcutaneous in situation, and softish or quite firm to the touch.

FIG. 69.



Leprosy tuberculosa. (After DANIELSEN and BOECK.)

The site of predilection of leprosy tubercles is the face; and their massing in great numbers upon this region produces the characteristic deformity of the countenance which has given to the disease one of its names, LEONTIASIS (face of a lion). In such faces the tubercles are ranged in parallel series above the brows, down the nose, over the cheeks, the lips, and the chin. In consequence of the infiltration and development of the lesions, the brows deeply overhang the globes of the eyes, the lids become affected with a partial ptosis, the lips pout, and the ears are so studded with tubercular masses as to project from the side of the head. The trunk and extremities, including the palmar and plantar surfaces, are then usually to a less degree involved. Occasionally, indeed, with extensive development of tubercles upon the face and ears, there may not be more than from five to fifty upon the rest of the body, and these either widely

dispersed and isolated, or agglomerated in a single, hard, flat, elevated plaque of infiltration upon the elbow or thigh.

With these cutaneous lesions there is often involvement of the mucous surfaces, especially the velum palati and larynx. In the case of a leper affected with the tubercular form of the disease whom the author exhibited at the clinic in 1879,¹ there was very marked gruffness and hoarseness of the voice, and the larynx and velum were studded with pin-head to pea-sized, ashen-hued tubercles. Others may form upon the conjunctiva and the Schneiderian membrane.

FIG. 70.



Tubercular leprosy (from a photograph of a leper in the Sandwich Islands).

These tubercles may degenerate into ulcers; or undergo resorption and disappear, leaving in their place pigmented atrophic depressions; or lose their shape in consequence of partial resorption. I have thus seen a large plaque flatten centrally till an annular disk was left to indicate its former site.

It should be borne in mind, however, that the course of the disease is exceedingly slow, and that years may elapse before these several

¹ Chicago Med. Journ. and Exam., December, 1879, with cut showing laryngoscopic appearance of larynx.

changes are accomplished. The disease, indeed, often appears to be quiescent for months at a time, after which with the occurrence of fever acute or subacute manifestations appear, and a relatively rapid progress is made toward its fatal conclusion. Long before the latter is reached there are usually, in tubercular leprosy, intermingled symptoms of anæsthetic type, such as the occurrence of bullæ or of anæsthetic patches with and without pigmentation. Toward the last, the mutilations effected by the disease may result (*LEPRA MUTILANS*). Phalanges of the fingers or toes, whole digits, an entire hand or foot may then become partially or wholly detached by ulcerative, atrophic, or other degenerations of skin, bones, and ligaments, hastened or not by intercurrent attacks of lymphangitis, erysipelas, septicæmia, and irritative fever.

The stadium of this type of the disease may extend through ten or even more years. After its full development, the peculiarly dejected countenance of the leper with his leonine facies and general appearance of cachexia, are highly characteristic.

[B.] *Lepra Maculosa*.

This form of the disease is chiefly distinguished, as its name implies, by its macular lesions. These have the general character of those described as preceding the appearance of the leprous tubercles. They are diffused or circumscribed, roundish or irregularly shaped, and in color yellowish, brownish or bronzed, often shining or glazed. They may be infiltrated or not; and in the former case, be slightly raised from, or on a level with, the adjacent tissues. At times, they appear as lardaceous deposits in the skin, whitish, reddish, or even blackish in color, with a telangiectasic border. These patches are usually at first hyperæsthetic, but finally become quite insensitive, so that a lancet can be thrust deeply into them without producing the slightest sensation.

The pigment variations in macular lepra are noticeable. At times, a distinctly anæsthetic patch may be readily limited both by its lack of sensation and of normal color; at others, either symptom may fail to correspond with the area of involvement defined by the other. Thus a palm to platter-sized, texturally unaltered area over the thigh or belly, may suggest a vitiligo by its relatively slight pigmentation and its distinct contour, beyond which are sepia- to deep-chocolate tints, gradually fading toward some adjacent and similarly involved patch. Yet this area will often differ materially from that of vitiligo in other respects. Every inch of the former may be totally insensitive to the prick of the lancet, and be moreover of a dull, tawny, yellowish, or parchment-like hue, never having the peculiar milky-white tinge of vitiligo. Again, this anæsthesia may extend widely beyond the line traced by the pigment anomaly, or even within the latter vary, islets of skin capable of perceiving sensation, being in cases here and there discernible.

[C.] *Lepra Anæsthetica.*

This variety may be, as has been described, commingled in its symptoms with each of the others. With and without these, however, there is commonly noted first an eruption of bullæ, bean- to large nut-sized, with a roof-wall constituted of the entire thickness of the epidermis, filled with a clear tinted or blood-mixed serum, occurring usually upon the extremities. The cicatrices which follow these are atrophic patches, often far greater in extent than the base of the original bulla; whitish, shining, glazed, or better described as of a tint suggesting the hue of mica; circular in outline, forming also the dumb-bell figure by coalescence or juxtaposition. These are always anæsthetic; and may coexist with macular and anæsthetic patches upon the trunk or other portions of the body. Neither those of the one class nor of the other, are, however, disposed over the surface of the body in lines, bands, or curves corresponding to the distribution

FIG. 71.



Anæsthetic leprosy with mutilating results (from a photograph taken of a leper in the Sandwich Islands).

of the cutaneous nerves. The greatest irregularity is displayed; asymmetry is the rule. Occasionally, however, the ulnar and other nerves accessible to the touch, are recognized to be tumid, tender, insensitive, or as rigid as indurated cords. General atrophic cutaneous symptoms follow these; the skin becomes dry and harsh; there is manifestly little or no sebaceous product; the sweat is scanty; the

muscles atrophy; the hairs fall; the lymphatic ganglia enlarge; the skin of the face seems tightly stretched over the bones. As a result of deforming atrophy of the lids, epiphora and consequent orbicular changes ensue, and the parted lips permit constant escape of saliva. The fingers are half drawn into the palm of the hand; the nails are distorted, and, later, ulceration occurs. The ulcers are irregular, oval, roundish, linear; covered with thin, blackish, flattened, tenacious, never rupioid, crusts; their bases are soft, their floors covered with a pultaceous débris often mixed with blood; the whole often insensitive to every foreign body and external application. Lastly the symptoms of *lepra mutilans* often occur, digits, or portions of the carpus, metacarpus, or corresponding parts of the foot being detached from the body.

Death may ensue at any time during the course of the disease from septicæmia, exhaustion, or any of the intercurrent affections to which a patient in such condition is particularly disposed. Thus a leper was lately accidentally choked to death in San Francisco by some perversion of the function of deglutition. The disease, however, in this form is said to last from eighteen to twenty years, and is thus less rapidly fatal than the tubercular variety.

Etiology.—Leprosy is a contagious and infectious parasitic disorder produced by the bacillus *lepræ*. Secretions of a leprous patient con-

taining these bacilli or their spores, are the usual vehicles by which the disease is transmitted from man to man. The question of the inheritance of leprosy may be regarded to-day as in much the same position as that relating to the inheritance of tuberculosis, an admitted fact as yet not fully explained. Men are more often affected with the disease than women. The disease is more common after the second decade, though children are occasionally found among its victims.

The geographical distribution of leprosy is widely extended. In countries where

it has previously existed, its appearance is invariably due to the contagion of sound individuals by lepers infected in a country where the disease is prevalent. Neisser formulates the law of its prevalence by stating that the number of lepers in any country bears an inverse ratio to the laws executed for the care and isolation of infected persons.

The disease exists in the interior and throughout the seaboard regions of Africa, including Egypt; in Arabia, Syria, Persia, China, Japan, and India; in the Islands of the Mediterranean, Black, Caspian, and China Seas, of the Indian Ocean, and of the Australian Archipelago; in Norway and Sweden, Iceland, Russia, Turkey in Europe, Spain, France, Portugal, Greece, Italy, and sporadically in Germany, England, and the smaller European States; in Northern, Central,

FIG. 72.



Larynx of patient affected with *lepra tuberculosa*. (The author's case.)

and South America, and the West India Islands. In our own country, special attention has been directed to the subject by the existence of the disease in an epidemic form in the Sandwich Islands, with which the Pacific States sustain close commercial relations; by

FIG. 73.

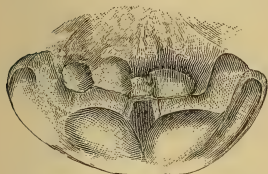


FIG. 74.



Larynges of lepers affected with lepra tuberculosa. (ELSBERG'S CASES.)

its occurrence among the Chinese immigrants in San Francisco and other portions of California; by cases reported from New Orleans by Burns,¹ Bemiss,² Jones,³ and Solomon,⁴ and by various reports of sporadic cases observed in Minnesota, Maryland, Illinois, Nebraska, New York, and other States of the Union, by Grönvold, Hoegh, Bendeke, Rohé, Piffard, Elsberg, Atkinson, the author, and others, collected by the Committee on Statistics of the American Dermatological Association, and presented to that and other bodies in special papers. Drs. White and Graham, of the same committee, have also contributed to the history of the colony of lepers which has long existed in Tracadie, in the province of New Brunswick.

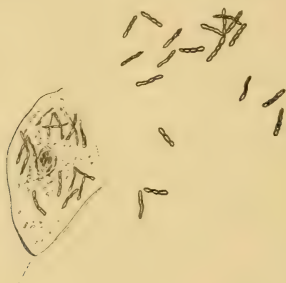
With this wide geographical distribution, it is yet clear that the disease exists endemically in certain countries, and also in certain regions of the same country, with greater frequency than in others. All attempts, however, to connect its origin with malaria, with a residence near inundated sea marshes, with the ingestion of a diet consisting largely of fish, or of a diet from which salt has been largely excluded, have failed of any recognized success. It is true that probably the larger number of all living lepers are those who have been poorly fed, and otherwise subjected to the most insalubrious of influences, but the disease also attacks, though far more rarely, persons whose social position and hygienic surroundings are of the best. It occurs in both sexes and at all ages; and, despite all efforts to show the contrary, bears no relation to syphilis. Lepers become, however, syphilitic if infected with the disease, precisely as they may and do acquire variola, varicella, morbilli, erysipelas, and phthisis. The Hebrew Scriptures, are often interpreted as showing that the disease among the Jews in Palestine was regarded by them as contagious and so treated. The modern student of these writings will, however, be convinced that this interpretation is erroneous. The

¹ Arch. of Med., December, 1881.³ Ibid., March, 1878.² N. O. Med. and Surg. Journ., April, 1880.⁴ Trans. Louis. State Med. Assoc., 1879.

leprosy of the book of Leviticus not only includes lepra, as that term is understood to-day, but also psoriasis, scabies, and other cutaneous affections. The leper in the eye of the Mosaic law, was ceremonially unclean, and capable of communicating only a ceremonial uncleanness. Several of the narratives contained in these books bear witness to the fact that the Oriental leper was occasionally seen doing service in the court of kings, and even in personal communication and contact with officers of high rank.

Pathology.—The histological element of leprosy is represented by a new growth of round, oval, uni- or bipolar or otherwise irregularly contoured bodies. These originate either in the connective tissue of the skin, mucous membranes, adventitia of the vessels, or nerve-sheaths, or are derived, as Schmidt has shown, from the epithelium, endothelium, and even the fat elements of the affected tissue. These are single, or grouped in a collection of two, a dozen, or even more individuals; such groups being arranged in elongated, oval, pyramidal, or ellipsoidal forms. Making its earliest appearance in the

FIG. 75.



Bacilli of leprosy. α , epithelial scale About $\times 1200$. (From one of the author's patients.)

reticular portions of the corium, the growth may progress thence externally toward the papillary layer and epidermis, or downward to the subcutaneous tissue, or develop in both directions simultaneously. Gradually there is invasion of the pilary and sebaceous follicles, the coil-glands being apparently less frequently involved. In the same way, the fat and vascular elements undergo a transformation into the newly formed elements. The viscera are also changed by the pathological process, particularly the liver, kidneys, and spleen. By degeneration of these elements, atrophy, ulceration, and eventually the mutilating deformities of the advanced stages of the disease are induced.

The result of the researches of Schmidt are in accord with the observations of Virchow, relative to the peculiar changes in the

nerves. Explaining thus the hyperæsthetic, anæsthetic, and possibly also the pigment alterations so characteristic of the malady, proliferating elements are recognized by this author in the ependyma of the central canal of the spinal medulla, in the posterior commissure, and about the fourth ventricle. The nerve-fibres in the posterior and other white columns, undergo degeneration, as also those of the medulla oblongata, the corpus striatum, and the Gasserian ganglion, the latter being in one case small, indurated, and its connective tissue sheath thickened and adherent to the dura mater. The sheaths of the larger nervous trunks have been also seen to be involved, and the peri- and endo-neurium atrophied as a result of previous infiltration, the axis-cylinders often, however, persistent.

The relatively slow progress of the disease is explained by the exceedingly slow development of the new formed material; its inaptitude, for long periods of time, to undergo retrogressive metamorphosis; and its tendency, for similar periods, to invade the skin exclusively, thus sparing for years the viscera whose ultimate involvement necessitates cachexia and a fatal issue.

In leprosy, as in scrofuloderma and syphilis, the aggregation of the cellular elements in the new growth tends to form cutaneous and subcutaneous nodes. Similar nodules are found in cornea, cartilage, testicle, spleen, liver, bone, and other affected organs. The body of each cell sometimes grows till it has four and five times the dimensions it originally possessed; being surrounded in its full maturity by an abundant vascular plexus.

The specific parasite of leprosy, the bacillus lepræ, is discovered in no other disease affecting man. It is visible within all cells actively concerned in the leprous new formation. They are delicate rods, with tapering extremities, one-half to three-fourths the diameter of a red blood-corpuscle, and have a breadth about one-fourth of their length, as distinguished from the bacillus of tuberculosis. Granular particles are occasionally recognized sprinkled through the protoplasm of a single cell which Neisser supposes to be either products of degeneration or spore formations. These various microorganisms have been chiefly studied and described by Hansen (1870, 1874, 1880), Carter (1875), Neisser (1879), Cornil (1881), Hillairet and Gauché (1881), and in our country by Bermann, of Baltimore. These observers not only recognized parasitic organisms in various tissues of the bodies of patients living and dead of leprosy; but have shown that the bacteria thus discovered, were the causes of the disease.

It is true that no human being has ever been infected with leprosy by the medium of culture-fluids originally derived from an infected person; but the demonstration to that point is satisfactorily conclusive. The appended illustration represents the bacillus lepræ recognized in the nodules taken from the arm of a patient affected with tubercular leprosy, exhibited at the author's clinic in 1886.

These organisms have since been recognized in mucous membranes, perichondrium, cartilage, testicle, liver, spleen, kidney, lymphatic glands, and in the large cells between the peripheral nerve-fibres and

fasciculi. Neisser has failed to recognize them in the spinal cord, muscles, pemphigoid lesions (bullæ), and rete mucosum. The older and larger the cells, the more numerous and more closely packed are the rods of bacteria contained within them.

Diagnosis.—In well-marked cases the recognition of leprosy is simple. In its prodromic periods, no suspicion of its existence would be awakened in countries where the disease was not endemic.

From syphilis, which is also a disease whose lesions are polymorphic in character, lepra can be distinguished by its much greater chronicity; its larger and brownish-yellow, glazed tubercles; its frequent hyperæsthetic and anæsthetic symptoms; its bullous lesions, rare in acquired syphilis; the far more extended areas of its erythematous macules; its blackish crusts, lacking the rupioid aspect of those in syphilis; its leathery, mica-tinted cicatrices; and the characteristic leonine facies of its tubercular forms.

Morphœa and vitiligo are both unattended by constitutional changes, and more particularly by hyperæsthetic or anæsthetic symptoms in the affected patches. The atrophic and often deeply pigmented condition of the skin in the final stages of pityriasis rubra, associated with the emaciation and febrile condition of the patient, might mislead for a time the observer who had not a full history of the case. Multiple sarcomata, especially upon the face, are followed by much more rapid degeneration and a fatal result.

Finally, we are now in position to assert boldly that, certainly in America, the diagnosis of leprosy requires not only clinical symptoms but a definite contagion. Whether the history of such transmission from one individual to another be or be not obtainable, it is certain that no person ever manifests leprosy symptoms who has not been infected by some other individual who is the victim of the disease.

Treatment.—One of the most important considerations relative to the therapy of leprosy is that requiring the segregation and isolation of all lepers from contact with the uninfected. In some countries, those particularly where leprosy prevails, wholesome laws enforce this separation of the infected, and charitably provide also for the care of the wretched victims of the disease. In this country, where leprosy, in consequence of its great rarity, has not yet awakened the attention of legislators beyond the point of forbidding the importation of infected persons, the proper care of lepers in a community only too ready to take alarm even at the name of the disease is a serious matter. Many of our public hospitals for the care of the sick poor refuse to receive them. The author has had experience in several States of the Northwest, where the officers of health-boards were powerless to make proper provision for the care of a leper whose case was brought to their attention.

No remedies are known to have a directly curative effect in leprosy. As a consequence, the treatment of the disease is that suggested to the intelligent practitioner by the indications in each case. The most important of the latter is, when the patient happens to reside in a

district where the disease prevails, an immediate change of residence and climate; the adoption of a highly nutritious diet; and the exhibition of roborant remedies, including steel, quinine, cod-liver oil, and often the moderate use of wines and malt liquors. Mercury, arsenic, the iodine compounds, Hoang-Nan in pills of three grains (0.266); creasote, in half-drop doses (0.033); the oil of cashew nut, gurgjun balsam, ichthyol, and chaulmoogra oil, internally and externally, have all been employed with varying success by different practitioners, but an unprejudiced review of the maximum of results thus obtained, will establish the conviction that no one of the remedies named may be regarded as in any sense possessing a controlling influence over the disease. Most of them have been employed by skilful physicians, sufficiently wise to enforce simultaneously the most generous tonic regimen, thus clouding with some doubt a belief in the part played by the medicament in the production of the result. In the case of a leper and his little daughter in the State of Nebraska, who were treated by the author for some time with chaulmoogra oil, very marked benefit was noticeable in the course of a few months, a result he is quite willing to credit, in this instance, to the salubrious surroundings of a farm in the country.

Every secreting ulcer and open surface in the person of a leper requires prompt and absolute disinfection with a solution of bichloride of mercury, in order to destroy the bacilli that are commonly contained in it.

Baths are of great value in all these cases, and may be medicated with any desirable substance. It should not be forgotten in the local treatment of leprous tubercles, ulcers, and other lesions, that however foreign the disease may be to this climate and this country, the simple principles, dermatological and surgical, by which one is governed in ordinary cases, are here not to be forgotten. Disinfectants, carbolic acid, bland unguents, inunctions, and local stimulants of the skin, are as useful, when properly applied to the leper, as to the syphilitic, the cancerous, and the scorbutic.

Prognosis.—The future of the leper is indeed dark. The disease is malignant in character, and, however protracted, a fatal result is usually inevitable. Still, with a change of climate and improved hygienic conditions, much can be accomplished. There can be no question that the Scandinavian lepers who have removed to this country have been greatly benefited by the change. Such, indeed, was the opinion of the late eminent Professor Boeck, who, during his useful career, visited Minnesota, and there studied the history of eighteen leprous immigrants who had come from his own country. He believed, in fact, that the change in some cases would work a complete arrest of the disease. A careful study of the history of leprosy in America will induce the belief that such a favorable result can be anticipated after residence in the Northwestern States, as well as in other portions of this country.

Pellagra.

Lat. *pellis*, the skin ; *æger*, diseased.

This disease has attracted attention by its extensive ravages in Lombardy and the contiguous provinces, including a portion of Southern France and Spain. It is also termed *RISIPOLA LOMBARDA* (Lombardy erysipelas), *LOMBARDY LEPROSY*, and among the common people, *LA ROSA*. It is a constitutional endemic disorder, accompanied by an exanthem, which justifies its brief consideration in this connection.

The first symptoms of the disease are prodromic, and characterized by marked fatigue, malaise, and occasionally by febrile symptoms. Soon the face, neck, chest, and backs of the hands and forearms (when exposed to the sun) are affected with an erythema of a dull, lurid hue, which may be accompanied by desquamation, occurring in successive years, chiefly in the summer season, often fading, at times with desquamation, in the autumn. After frequent relapses, the skin becomes of a dark olive-brown, bluish-red, or deeply pigmented and bronzed hue, and general exfoliation of the epidermis follows in large flakes. Simultaneously, an extraordinary degree of muscular feebleness is noticed ; the skin becomes pruritic or hyperæsthetic ; and a sensation of chilliness is induced, similar to that observed in general exfoliative dermatitis. As in that disease also, the fingers gradually become semi-flexed into the palm, and gastro-intestinal derangements supervene, accompanied by a furred tongue, inappetence, colicky pains, and diarrhœa. Disorders of the nervous system are betrayed by melancholia, disturbed vision, idiocy, convulsions, and symptoms of meningitis. Post-mortem, pachy-meningitis, with induration, atrophy, and other secondary changes of the brain and cord, have been observed.

Pellagra has been very generally believed to originate in the use, as an article of diet, of maize which was either invaded by the fungus of ergot, or had developed other deleterious substance after its reduction to a coarse powder. While this cannot be said to have been fully disproved, it is certain that individuals have suffered from the disease who have never partaken of maize, and also those who have not been specially exposed to the action of the sun, which in some cases seems to have served as the exciting cause of the disease. The exact etiology of the malady should rather be traced by the statesman and politico-economist. The wretchedness, poverty, poor food, and hopeless moral and social condition of the inhabitants of the pellagrous districts, many of them toiling under a burning sun, half-starved, emaciated, and despairing, should explain largely the symptoms of the scourge which afflicts them. Certainly there is here to be found a very satisfactory explanation of the failure of several writers on the subject to describe a disease of such typical aspect and career as to command recognition of its distinct and special identity. Subjected to the influences named above, a large population could

scarcely fail to exhibit a wide range of differences in the symptoms by which was expressed their physical protest against the severe ordeal to which they were alike exposed.

The treatment is that manifestly indicated in the facts set forth above.

Actinomycosis. [Ray-Fungus.]

This is a disease originally recognized in the jaws of horned cattle by Bollinger; and shown by Israel, Ponfick, Johne, and others to be occasionally transmitted to man. The disease is said, in such cases, to gain access to the jaw by the avenue of the cavities in carious teeth, where the fungus lodges and fructifies. One or several small or large tumors form in the jaw and submaxillary region, after the fungus has fully developed, in consequence of the formation of granulation tissue. By a process of ulceration and sloughing, the tongue, pharynx, larynx, and other parts may be invaded; and in cases even the intestinal canal, lungs, and spleen. The nodules which form and which once were believed to be sarcomatous, contain a fungus seen in the form of millet-seed sized and smaller yellow masses mingled with the new-formed granulation tissue. The fungus by its growth only seems to excite the chronic inflammatory process in the tissue without directly influencing the cells of which it is built up. Its title of ray-fungus is derived from a characteristic radiation of the grouped filaments of the vegetation. As degeneration progresses in the deeper parts attacked by the fungus (bone, periosteum, etc.), fistulous tracts communicate with the skin and furnish a secretion in which the parasite may be recognized.

The diagnosis rests upon the discovery of the small, yellow granules in which the fungus may be detected. The disease is not to be confounded with extra-periosteal abscess of the soft tissue about the jaw due to carious teeth.

The treatment, after thorough employment of antiseptics and parasitocides, is largely surgical.

Carcinoma.

Gr. *κάρκινος*, cancer.

Carcinoma of the skin, is a term employed in the designation of the several forms of malignant tumors which are in part constituted of epithelial new growth, either occurring primarily in the cutaneous tissues, or appearing there after the involvement of other organs.

The term Cancer has been both loosely and definitely employed in the designation of malignant cutaneous tumors. Every cancer of the skin is, according to Heitzmann, necessarily both alveolar and epitheliomatous in structure; while Kaposi distinctly recognizes forms of cancer which are not epithelial. In these pages, for the sake of retaining a convenient clinical distinction, the term carcinoma, or cancer, is used generically to include epithelial, fibrous, and melanotic

neoplasms. It will be understood, however, that in the structure of all of these new-formed groups epithelium plays an important part.

Epithelioma. (Epithelial Cancer.)

Three varieties of epithelioma are recognized—the superficial, the deep, and the papillary.

SUPERFICIAL EPITHELIOMA is usually first displayed upon the sound skin in the form of one or several, pin-head sized papules, flat infiltrations, or nodosities of a dull-yellowish, reddish, grayish, or dirty wax-like hue. The growth may also have its origin in previously existing lesions of the skin, which are both numerous and different from each other. Among the latter may be named fissures and excoriations (especially those long teased by caustic applications), warts, nævi, acneiform and molluscoid lesions; and the dry or greasy epidermal scales often seen at the orifices of the sebaceous glands in the faces of the aged. The outline of the newly developed growth as a consequence varies, being roundish, linear, or irregular. As a result of accident or traumatism (especially scratching and picking, which the history of a large proportion of all cases includes), a superficial excoriation forms, which may be covered with a sero-sanguineous crust, after the desiccation of its scanty and ichorous secretion. In the progress of its development, it is often noticed that new foci of disease appear in the immediate vicinity of the first, represented by sub-epidermic, indurated nodules, or superficial “pearls” resembling milia, whitish and lustrous, with marked tendency to vascularization, exfoliation, and superficial ulceration.

The result is the ultimate formation of an ulcer, called also the **RODENT ULCER**, whose characteristics are marked. These are a roundish, fissured, or slightly angular contour; and a reddish or reddish-brown, irregular, granulating, and mamillated floor, covered with a thin, translucent, viscid serum, which, in drying, suggests the effect of a varnish over the part. The edges of the ulcer are clean-cut, indurated, usually well attached; and, seen in horizontal profile, irregularly indented. The symptoms are slight at first; the lymphatic ganglia and general health being unimpaired. Its site of election is the face, particularly the eyelids, nose, temples, and lips, though the genitalia, hands, and feet may be affected. Of two hundred and fifty cases collated by Heurtaux, in one hundred and ninety the face was attacked.

The subsequent course of the lesion varies, its evolution being generally slow and accomplished in years. Sometimes having attained a maximum of size, an ulcer, if unmolested, long persists without appreciable change. In other cases, the base cicatrizes and the epithelioma completely exfoliates, leaving an outlying linear ulceration which may persist or spread. In yet other cases, after a persistence of ten to twenty years, the ulcer may spontaneously close and the disease be at an end. Finally, any one of the destructive

and malignant cancerous processes may be awakened, and the epithelioma be thus transformed from the type of the superficial to that of the deep variety of the disease.

DEEP OR TUBERCULAR EPITHELIOMA.—This variety may originate in the manner already described, or may be from the first characterized by its specific features. It commonly begins by the formation of roundish, very firm pea-sized nodosities closely set together, deeply in the skin and subcutaneous connective tissue, or thus situated and well projected from the surface. In the course of months and years these develop to form a nut- or even small egg-sized tumor, roundish, dark reddish in color, and delicately vascular on its surface. This may be a deep flattish or globoid development within the skin; or a well-defined tumor attached to it; or (and this is a common form) a dense, thick, flattened plaque, one inch or more in diameter; its walls steeply descending to the sound skin on either hand or moderately everted; its centre depressed by atrophic changes; its surface shining, waxy, pinkish or red, with ramifying capillaries. "Satellites" may form in its vicinity.

Degeneration of these forms produces in the course of time an ulcer either quite like that described above, or one which deeply and destructively encroaches upon the tissues beneath. In advanced cases, the latter is irregular in contour, with a clean-cut, everted, indurated lip; eroded and "gouged," hæmorrhagic and granulating floor; thin, viscid secretion which is purulent at times when the resulting destruction is rapidly accomplished; and a deep attached base which may be perforated by a crateriform excoriation extending down to or through muscles, fasciæ, cartilage, and bone. The lymphatic ganglia become simultaneously involved, and a general cachectic condition fully established. Death may ensue from marasmus, exhaustion, or hæmorrhage, in the course of several months or from one to three years.

PAPILLARY EPITHELIOMA.—The cancer in this variety assumes the form of a malignant papilloma. In these cases, a pedunculated or sessile, narrow or broad based, smooth-capped, or spongy and verrucous vegetation is attached to the skin upon which it forms. It may be originally as small as a pea, but usually increases considerably in volume, being not rarely pigeon's and turkey's egg-sized. The surface is either dry, reddish-yellow, smooth, and lustrous; exfoliating, and secreting an offensively smelling sanguineous or translucent fluid; or moist, granulating, filamentous, and intermingled with hairs, as when it occurs upon the bearded cheek. Degeneration occurs later, fissures forming first; subsequently appear superficial, and finally deep, ulcers which ultimately assume all the features of those described above.

Singular varieties of papillary epithelioma are occasionally seen upon the face. In a case lately observed by the author, the entire face of an elderly man was covered with rings having a diameter of

an inch or more, of which the centre was largely composed of densely indurated, cicatricial tissue. The borders of these rings were built up of a reddish-brown, warty, cancerous growth, secreting slightly, here and there commingled with the hairs of the face (beard, eyelashes, brows), and elevated one-fourth of an inch and more above the general level of the integument. Growths of this sort are not rarely seen upon the back of the hand, over the forearm, and on the leg. Distinctly circinate forms are produced, the vegetation here having a dryish appearance, a brownish-red crust, neither bulky nor uniform, a cicatrilform or infiltrated central area, and an exceedingly slow course. In some cases the epithelioma forms a soft, hemispherical, small-nut to egg-sized tumor, which, upon pressure, discharges numerous convoluted plugs, composed of epithelium, fatty masses, and a purulent secretion. The bases of these soft masses are remarkable for the ease with which they can be curetted, and thus radically removed.

These varieties or types of epithelioma may coexist in different portions of the same integument; or the one may develop from the other, a malignant papillary growth springing from a superficial or deep cancerous infiltration. Familiar examples of the disease are seen upon the lids and contiguous portions of the nose; the cheek and the lower lid, the latter being often drawn into ectropion by a cicatrilform bridle or band; the nose or lip and adjacent mucous or osseous tissue; and the glans and prepuce where the vegetating forms are of more frequent occurrence. The vast destruction wrought by the widest development and consequent degeneration of epithelioma is sufficiently recorded in the annals of both medicine and surgery. The author was lately consulted in the case of a woman sixty-four years of age, in the centre of whose face an ulcerating epithelioma had left a wide chasm, after destroying three-fourths of the nose and upper lip, and the hard palate with all the upper teeth and the antrum. The bones at the base of the skull were exposed. The case illustrated well the occasional remarkable tolerance by the system of the profoundest encroachments of epithelioma. She was then digesting and assimilating food with fair profit, and suffered chiefly from pain. She did not die till several months had elapsed, and then only as the result of hemorrhage from an ulcerative opening into one of the large arteries.

CANCER OF THE HEAD.—In this region of the body nearly three-fourths of all cancers of the skin are recognized. Upon the brow, alæ of the nose, temples, cheeks, chin, scalp, or other part, the disease may begin either upon or beneath entirely normal skin, or in that which has been pathologically changed. The origin of the disease is usually ascribed to the picking, scratching, or shaving of a sebaceous wart in the old man; or in similar traumatism of acneiform, seborrhœic, or furuncular lesions in either sex. In other cases, the dermatologist, consulted with reference to some other ailment of the skin, can recognize, in persons of the age most liable to such accidents, one or several pin-head-sized, or larger milium-like nodules,

clustered about the temples or nose, which indicate the site of the awakened epitheliomatous change. The disease progresses very slowly, spreading superficially, along the alæ of the nose in irregular lines, in more complete centrifugal outline over the temple and brow; almost symmetrically over the tip of the nose, and with odd indentations of contour in the dense integument immediately in front of the tragus of the ear. The vegetating forms are more common on the brow, scalp, and chin; the "rodent ulcer" type, over the temples and cheeks. The more superficial varieties in any part of the face may be slowly converted into the deeper. The flattened, egg-sized disks of infiltration are more common on the cheeks and chin.

The devastation produced by malignant cancer is nowhere more conspicuous than in the face. Cartilage, bone, muscle, and entire organs melt before its ravages with astounding readiness. During the last two years, the author has seen a circumscribed flat epitheliomatous infiltration, limited for years to one cheek, spread to the point of destroying the ear, eye, and inferior maxilla of one side of the face, opening into the larynx and œsophagus, and not producing fatal results till the jugular vein of the same side had been opened by ulceration.

CANCER OF THE LOWER LIP, far more common in men than in women on account of the tobacco habits of the former, may arise either as a minute nodule, or circumscribed thickening on or near the vermilion border, usually of one side, or as a linear, narrow, and shallow excoriation, often protected by a thin crust, extending well along the mucous edge of the lower lip that is in contact with the other when the two are lightly approximated. Later, the lip may be the seat of a defined tumor, small-nut to egg-sized, which may deeply involve the entire thickness of the lip, encroach upon the chin, loosen the teeth, destroy the gums, larynx, pharynx, tongue, and maxilla; and eventually produce one of the most formidable and remediless chasms of the lower part of the face already described.

CANCER OF THE GENITAL ORGANS is submitted to the surgeon far more frequently than to the dermatologist. The glans penis and prepuce are occasionally the seat of the warty variety; but the scrotum, labia, thighs, mons veneris, and abdominal walls, as well as the parts first named, may be involved in the superficial or deep form of cancer. In persons of cleanly habits, the superficial variety of epithelioma may remain in this region as indolent and innocuous as upon the face. But where filth is permitted to accumulate about the part (lochial, menstrual, catarrhal secretions, pus, urine, feces, etc.) the spread may be relatively rapid. In such cases the ulcer is deep, seated upon an indurated and very tender base, and has the steep, punched edge and hæmorrhagic floor of the rodent ulcer. Ulceration may, later, open the rectum, vagina, corpora cavernosa, perineum, and deep perineal fascia, resulting in vast destruction that proves fatal by exhaustion of the forces of the aged patient.

CANCER OF THE EXTREMITIES, particularly of the back of the hand, is at first usually of the papillomatous, or flat, superficial form. It may first appear upon the left hand of right-handed patients. Its progress is indolent, and when properly treated is much less liable to grave ulceration, than epitheliomata in different situations. In other cases, especially on the lower extremity where the force of gravity generally aggravates any ulcerative process, caries, necrosis, fistulæ, loss of phalanges, etc., may result.

PAGET'S DISEASE OF THE NIPPLE, first described by that author in 1874,¹ is a disease of women from forty to sixty years of age, affecting the nipple and areola. An intensely red, raw, granulating surface begins by exuding a copious, clear, viscid secretion, accompanied by sensations of intense pruritus, heat, and burning. This is followed by unmistakable signs of epithelioma in one or another of the forms described above. Thin believes that the cancerous change involves the mouths of the lactiferous ducts, which spreads thence to the nipple, skin, and deep mammary structure. Munro, Anderson, Sherwell, Duhring, and others have reported cases of this kind, which Schwimmer concludes present no peculiarities entitling them to separate classification.

Etiology.—The essential causes of cancer are unknown, though there can be no question that mechanical, chemical, and other local irritations are often the immediate excitants of its pathological processes in the predisposed skin. In this way the excoriations, warts, nævi, and other lesions named above, though not in themselves cancerous, may become the original sites of the disease. In this way, too, the irritation produced upon the lip of the smoker by his pipe or tobacco; the local disorder about the inner canthus of the eye resulting from occlusion of the lachrymal ducts; the frequent teasing by caustic or other substances, of the wart on an old man's hand; and other agencies disturbing the balance between waste and repair, aided at times by senile atrophic changes, may result in the development of an epithelioma. The possibility of the transmission of cancer by heredity has almost ceased to obtain credence in the light of modern pathology, yet Broca reports sixteen deaths from cancer in one family, and Friederich, a congenital epithelioma in the child of a cancerous woman.

The disease is eminently one of advanced years, being most frequent after the fortieth year, and a pathological curiosity in childhood. Kaposi reports one case at the tenth year. Only about thirty per cent. of all cases occur in women, a fact possibly explained by the relative infrequency of the action of local irritants in those who are not subjected to the exposure incidental to the trades and severe occupations of life.

These figures, however, relate only to cancer of the skin, since,

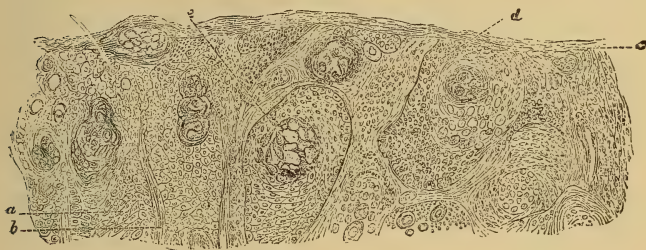
¹ St. Bartholomew's Hospital Reports, p. 87, 1874. See also the paragraph devoted to this subject under the title of Eczema, p. 307.

when cases of cancer of the breast and uterus are included, the proportion of the sexes affected is almost exactly reversed.

In favor of the local origin of all epitheliomata, is the clinical fact of the excellent general health of most patients in the earliest stage of the malady; while those affected with syphilis and tuberculosis are usually exempt.

Pathology.—The histological forms of epithelioma are well classified by Vidal,¹ as follows: 1. The interpapillary form, in which cylindrical or peg-like epidermal prolongations flattened at the periphery, penetrate downward from the rete, often in parallel columns, between the papillæ of the corium, and are occasionally connected below by a species of anastomosis. Here, at times, onion-like “globes,” “nests,” or clusters of concentrically arranged epithelial masses are

FIG. 76.



Epithelioma, vertical section. *a*, *d*, cones of the rete projecting downward; between these are seen atrophied papillæ *b*; at *c*, *d*, and other points, are “nests” of epithelium; *e*, atrophied stratum corneum. (After Kaposi.)

to be recognized, the centre, as Heitzmann remarks, being too often occupied by epithelium in a state of fatty degeneration. In this way the derma and subcutaneous tissue may be, after previous vascularization, completely invaded. 2. The lobulate form, in which the epidermic globes are in pronounced excess, forming distinctly defined masses invading the connective tissue. Here multiplication of the elements is abundant, thus diminishing or occluding the lumen of the vascular elements, and leading to necrobiosis and ulceration. 3. The tubular form, cylindroma of Billroth, the *adénome sudoripare*, of Verneuil. In this, tubes like sweat ducts with a calibre, penetrate the meshes of the connective tissue, often intermingled with epidermic globes. It is largely this form of the disease which Tilbury Fox and T. Colcott Fox² have recognized as originating from the external root sheath of the hair-follicle. 4. The pearly form, which Heitzmann has demonstrated to result from fatty degeneration of the epithelium in the centre of a “globe” or “nest.”

With regard to the secondary structural metamorphoses of epithe-

¹ Gazette des Hôpitaux, Nos. 113 and 114, 1879.

² Trans. of the London Path. Soc., 1879.

lioma, these are described by Heitzmann as due to fatty degeneration of the epithelium, which process may result in its calcification. Waxy degeneration of both epithelium and connective tissue produces the appearance of shining homogeneous masses within the tumor, which are characterized by a noteworthy indifference to the action of chemical reagents. Colloid and adenoid metamorphoses follow the breaking apart of already formed cancer epithelium, into medullary elements from which myxomatous tissue arises. Cystic cancer is a higher development of the colloid form, where the myxomatous tissue in the alveoli liquefies. The papillary forms are exuberant growths of circumscribed portions of the tumor toward and beyond the surface.

Briefly, every column, "nest," "globe," or tubular prolongation within the skin, containing within itself an irregular admixture of epithelium and connective tissue, is a cancer, or epithelioma, whose gravity seems to be proportioned to the relative development of the contained epithelium. As to the origin of the latter, Heitzmann is in accord with Virchow in affirming the fact of its production from connective tissue. The medullary elements into which connective tissue is transformed as the result of an inflammatory infiltration, have been traced in the process of metamorphosis into cancer epithelium. Once fully developed, the neighboring lymphatics are invaded, and secondary involvement of the viscera may follow. These minute epithelial particles of the neoplasm are swept into the lymph ganglia, thence through the lymph to the bloodvessels; where finally, lodged in capillaries with a narrow lumen, they produce embolism.

The malignant forms of cancer may undergo changes by which they are transformed into sarcoma. In these, the epithelia become gradually indistinguishable as such, in consequence of a species of liquefaction by which they are converted into medullary elements.

Geber explains the pathological changes as follows: 1. Enlargement of cones of the rete, the peripheral epithelium becoming cylindrical; the central, showing cubic and rhombic, or flat, compressed, polygonal, dentated, and spinous elements. There are multiple nuclei, nucleoli, and vacuoles. 2. The sprouts of epithelium passing into the connective tissue become so long, flat, and abundant, that the products of secondary inflammation choke them at one point or another, so that separation occurs, and the isolated part becomes a brood-nest for one or several cancer colonies. 3. The cylindrical form of the cells is either then not visible or rudimentary in character, the cells and nuclei dividing. 4. There is dichotomous division of the smaller and infiltrated papille, projected beyond the general surface of the skin, producing thus the papillary form of cancer. Or, the irritation progressing *pari passu* with the proliferation of epithelium, the corium is uniformly infiltrated with round cells, the connective tissue corpuscles multiply, the vessels dilate, and the cells, constituting their parietes, proceed to further development.

When the epithelioma originates in the deeper structure of the corium, a round-celled proliferation affects all the epithelial structures

in the cutaneous glands and hair-follicles, as well as in the deeper portions of the rete mucosum. The epithelial cones are large and increase out of proportion to the stroma of the cancer-tumor, which is, therefore, softer and more juicy. The bloodvessels and lymphatics multiply, especially in the rapidly growing nodules. As the disease advances, nervous, muscular, cartilaginous, osseous, and other tissues may undergo a cancerous transformation, or be simply eroded before the inflammatory and pressure effects of the growing neoplasm. Occasional terminations of the disease are by exfoliation, ossification, calcification, fatty metamorphosis, and sloughing *en masse*.

Diagnosis.—Epithelioma is to be distinguished from lupus vulgaris approximately, by the age of the patient, the latter disease rarely appearing after the thirty-fifth year where there is not a scar or history of its earlier existence. Lupus is, at an earlier period of its career, more diffuse than epithelioma; its elementary lesions are more distinctly groups of individuals than a homogeneous aggregation; its ulcers are more often bordered by outlying non-ulcerative papules, furnish a more puriform discharge, and, most distinctive of all, are never walled about by the firm, densely indurated, often everted lip of the epitheliomatous ulcer, opening out often to a sound peripheral integument. The peculiar and often characteristic odor of the cancer discharge, is absent in lupus.

From syphilis, epithelioma is to be distinguished: first, by the age of the patient, syphilis being decidedly a disease of early and middle life; second, by the far greater relative rapidity of the syphilitic process, exception being always made of tertiary gummatous ulcers upon the lower extremities persisting for years when there is both lack of internal treatment and local support; third, by the history of the disease in each particular case; and fourth, by the characteristic syphilitic features always present in infected individuals, including multiplicity of lesions, typical cicatrices, contour of ulcers (that of epithelioma is rarely either reniform, horse-shoe shaped, or crescentic), character of discharge, and general absence of pain. A very important point to note is a marked tendency to reparative cicatrization in old syphilitic ulcers, partly due to the exhaustion of the infective poison, partly to the influence of the insufficient but yet modifying treatment so common in this country. This is exceedingly rare in epithelioma, the latter being often, the former rarely, a malignant disease.

Epithelioma of the genitals is not to be confounded with chancre, or syphilitic tubercles of that region. The peculiarities of the consequent adenopathy in each case; the lancinating pains of the cancer; its much more prolonged duration; and occurrence in an aged subject, with the general history of the case, will usually point to the truth.

Sarcoma is characterized by: its far more rapid evolution, tumors often attaining their maximum of development in the course of a few months; its occurrence by predilection in earlier life; its inaptitude

for ulcerative degeneration ; and its marked tendency to multiplication in contiguous or distant portions of the body.

The warts, nævi, excoriations, and seborrhœic lesions, from which epitheliomata often take their origin, cannot be determined as having such a tendency before the cancer has attained some development. Every such persistent and long irritated lesion on the person of a male subject of advanced years, should be regarded with a degree of suspicion.

Treatment.—No internal treatment of cancer of the skin is known to exert the slightest influence upon the growth.

The treatment of epithelioma is by excision, erosion, or destruction of the growth. The first is performed by surgical ablation with the bistoury, after which one of the plastic operations may be required for either the complete covering of the wound, or the relief of the resulting deformity. The second is applicable only to the less formidable growths, and is performed by the aid of the dermal curette.

Destruction of cancerous tumors of the skin is usually performed by the aid of caustics, of which caustic potash, in stick or solution, is, perhaps, the most valuable, as its destructive action may be controlled by the topical employment of acids, and is followed by less pain than some other chemical agents. Other caustic substances employed for a similar purpose are, chloride of zinc, Vienna paste, nitrate of silver, arsenical paste, and pyrogallol. The latter is recommended highly by Kaposi, not only because its application is unproductive of pain, but also because it does not attack sound tissue. It is used in an ointment of ten per cent. strength. All such pastes and ointments should be spread upon cloths, and applied for from three to six days. Opiates may be required, in the case of several of these agents, to relieve the consequent pain.

Among the formulæ used for caustic purposes are the following :

R. Creasoti	℥ss ;	16
Acid. arsenios.	gr. iv ;	266
Opii pulv.	gr. ij ;	133 M.
For employment upon circumscribed surfaces.		[Kaposi.]

Marsden's paste, also employed as a caustic, is made by combining equal parts of gum Arabic and arsenious acid with water sufficient to make a softish paste. It is preferred by Robinson to others, and is applied on rubber plaster.

Cosme's paste, as modified by Hebra, is prepared as follows :

R. Acid. arsenios.	gr. vj ;	40
Hydrarg. sulphuret. rub.	℥ss ;	2
Unguent. aq. ros.	℥ss ;	16 M.
Sig. Arsenical paste.		

The method of its application is as follows : The paste is spread over a thin sheet of lint to the thickness of a knife-blade, and the lint then cut to a shape and size corresponding with that of the tumor or ulcer to be destroyed. After its close apposition with the surface to be attacked, it should be covered with gutta-percha, or other

impermeable tissue, and a compress laid over the whole. The dressing is removed, the parts washed clean, and the same application renewed in twenty-four hours. By the third or fourth day, the destruction of the cancerous growth is usually complete, and the parts are ready for an emollient poultice, which should be applied for the three or four days during which the separation of the sloughs occurs. The simple ulcer left, is to be treated on general principles. The danger of arsenical poisoning is here reduced to a minimum; the treatment being very effectual where patients consent to the delay as to time and to the very severe pain which it occasions. It has been used by me with satisfactory results, and is highly praised by Atkinson¹ in an admirable lecture on epithelioma, delivered by him in the University of Maryland.

The thermo- and galvano-cautery also may be often advantageously used for the destruction of the growths. I have used the former by preference in many cases, occasionally without, often with, return of the neoplasm. Its advantages are: the transitory character of the induced pain; the coal-like dressing left upon the attacked surface; and the elegance of the resulting scar. Both measures find their highest value when employed after effectual excision or erasion.

Whatever method be employed, thoroughness is essential in attacking all portions of the new growth; and it is well to encroach somewhat upon the unaffected contiguous structure. The subsequent dressings should be made with simple or carbolated unguents, to which one of the salts of morphia may be added in case of continuous pain. The eschar usually separates in the course of a few days, leaving a simple granulating wound which may cicatrize soundly, and the epithelioma be thus radically relieved. In other cases, the disease reappears in the ulcer or cicatrix; or by recurrence of cancerous nodules in the previously sound integument. Even after these recurrences, prompt destruction of the new growth may be finally successful.

But little confidence is placed upon any external treatment which does not effect the complete destruction of the neoplasm. Yet there are those who highly esteem some of the procedures which are less radical in their aim. It is proper to mention these.

There can be no doubt whatever that some circumscribed and relatively small growths disappear under the hot-water treatment. The sole question which then arises concerns the possibility of spontaneous recovery in such cases irrespective of the treatment pursued, since such spontaneous involution is a clinical fact, rare of occurrence though it be. By this method, the neoplasm is sponged with hot water for from fifteen to twenty minutes every three hours of the day, and oftener if possible, for three weeks in succession. The water is as hot as can be tolerated, and applied by the aid of a bit of sponge mounted on a probang. During the course of the application, water in a state of ebullition, is added in small quantities to that in

¹ Reprint, in *Chicago Med Journ. and Exam.*, Aug. 1880, p. 188, from the *Virginia Medical Monthly*.

which the sponge is dipped from minute to minute, thus keeping the temperature at the highest tolerated point. Immediately after each application, the part is thoroughly dried, and then either anointed with a bland unguent or completely covered with iodoform in powder. When such applications are of service, the good effect will usually be noted in a week. The ulcer changes its aspect in color, edges, and floor; and the pain, if any have existed, is greatly relieved. Granulations of a healthy type appear, and the lips of the sore contract. Non-ulcerated lesions shrink in volume, and otherwise change in feature. This system of "parboiling" has the advantage of not precluding the ultimate employment of radical measures. The largest epithelioma completely relieved by this method, was of the type of the "rodent ulcer," on the temple of a male patient seventy-two years of age. It had the size of a section of a small hen's egg. The resulting cicatrization was satisfactory in all respects. There has been no return in two years. Needless to say, the method will often fail.

Lévêque,¹ Vidal,² Bergeron,³ Euthyboule,⁴ and others claim large success in the treatment of epithelioma by chlorate of potash. Locally, the part is frequently touched with a saturated solution of the salt in glycerine and warm water, after which a simple ointment dressing is applied. Vidal administers also the same drug internally, in doses of a drachm and a half (6.) in syrup and water before meals. It is possible that any remedial effect obtained from such measures should be attributed to the fomentations employed.

Latterly, benzole has been reported as a valuable topical application to small-sized epitheliomata. The author has employed it in several cases with no very marked results.

Injections of solutions containing copper-sulphate, iodine, alcohol, acetic acid, nitrate of silver, chloride of sodium, and hydrochloric acid have been practised, it is claimed, with some success; certainly at times with fatal results. The method is unquestionably inferior to others described above.

Prognosis.—In general, it is scarcely necessary to say that the prognosis of cutaneous cancer is grave. The relative degree of gravity will, of course be largely proportioned to the variety, form, size, career, and complications of the growth in each case. The variety in which "pearls" only form in the skin is the most benign of all, as the lesions are usually isolated, and often, when unirritated, undergo spontaneous exfoliation. In other cases, the disorder for from fifteen to twenty years seems to make no progress of any sort. The malignity of a cancerous growth is always proportioned to the quantity of epithelium contained in its alveoli as compared with the connective tissue present; the more abundant the latter, the more favorable the prognosis. Naturally, also, the deeper and the more destructive the growth, the fewer are the chances of ultimate recovery. Excessive pain and adenopathy are unfavorable symptoms in any

¹ Glasgow Medical Journal, 1881.

² Acad. de Méd., Paris, 1873.

³ Loc. cit.

⁴ Thèse de Paris, 1877.

case. Koch¹ gives some interesting statistics of the results of operations, at the Erlangen Clinic, for removal of epithelioma of the lower lip, in one hundred and thirty-one patients exhibiting primary lesions. One hundred and fifteen were for the time "cured;" four had speedy relapse; and three were, at the date of writing, living and suffering from recurrence of the disease. The prognosis was thus absolutely favorable in but twenty-eight cases.

Cancer of the Connective Tissue.

This is rare as a primary cutaneous manifestation, but appears generally as secondary to a cancerous involvement of other organs, as of the female breast. It is termed also SCIRRHOUS, HARD, FIBROUS, or LENTICULAR CANCER. It occurs either upon the skin covering a breast which has been previously transformed into a cancerous mass, or as a cutaneous relapsing lesion after the extirpation of the latter. Its symptoms are pea- to bean-sized, densely firm, shining nodules, varying in color; or a more or less diffuse infiltration of the skin of similar characteristic hardness, associated often with hyperæmia of a purplish-red shade.

A very interesting case of widely disseminated lenticular cancer of the skin, illustrated by an excellent portrait, is described by Dr. P. A. Morrow,² occurring in a healthy-looking woman as a secondary phenomenon after removal of primary cancer of the breast. The lesions were closely set, small, shining, firm, red papules; erythematous redness; miliary and pigmented deposits, tubercles varying in size; subcutaneous nodules; ulcers, crusts, and cicatrices.

When the cancerous infiltration is widely diffused and indurated, involving at once a large portion of the integument of the thorax, the condition is produced which is termed by the French *cancer en cuirasse*. This infiltration also is usually secondary to involvement of other organs; but, according to Cornil and Besnier,³ it may first develop in the skin. Pathologically, the form of carcinoma here described is also epitheliomatous, since its fibrous stroma always contains, in the centre of narrow alveoli, a relatively small number of epithelial bodies. It is usually slow of development, but in the end accompanied, as are other cancerous tumors, by adenopathy, pain, and ulcerative changes, which induce an inevitable cachexia. Like the other varieties also, relapse after extirpation is common, and the prognosis is proportionately grave.

Tuberosc Carcinoma

is a rare manifestation of the disease, occurring in the form of multiple, firm, peanut- or egg-sized, roundish nodules, which break down by ulcerative processes into deep losses of tissue. It is frequently accompanied or followed by cancerous involvement of other organs.

¹ Centralblatt f. Chirurg., 1881, No. 40.

² Journal of Cutan. and Vener. Diseases, June, 1884, p. 1.

³ Bulletin de la Soc. Méd. des Hôp., 1878, p. 158.

It occurs chiefly upon the face, hands, arms, and chest, though also upon other portions of the skin of persons of advanced years, either as a primary or secondary cancerous manifestation. Guinard¹ reports the case of a cancer of this variety, remarkable for the small size of the existing nodules, which varied from that of a hempseed to a pea. They covered the entire thorax, back, and right arm, and had here and there broken down into ulcers. One of the latter was as large as the hand.

Melanotic or Pigmented Carcinoma

is that form in which both the epithelium and connective tissue framework of the cancer are richly supplied with bloodvessels, and probably, as a consequence of transudations from the latter, an abundant supply of pigment granules in groups and clusters. These growths usually begin as hempseed- to pea-sized, single or numerous, soft or dense nodules, which may develop in time to tumors of considerable size, and are stained in various shades from a grayish-brown or a slate-color to a dead black, the pigment being occasionally displayed irregularly in streaks or bands over the surface of the growth. They occur over any portion of the surface, oftener upon the extremities and genitals, starting frequently from benign pigmentary lesions, such as *nævi* and moles. Anatomically the pigment is found to be deposited both between the cells and in the protoplasm of the cells themselves.

The author has, in a few instances, seen the disease limited to single melanotic growths of this character. The cancer is apt to develop in the papillary form, furnishing thus fungoid vegetations which have a noteworthy tendency to degenerate into ulcers. Often such verrucous masses are seen surrounded by grayish or blackish papules, or by a diffuse cancerous infiltration of the integument, exhibiting irregular pigmentation of the surface. The disease is apt to appear in the viscera, in the form of disseminated cancerous nodules, each highly vascular, and exhibiting in varying quantity granules of pigment. The growth has usually a relatively rapid course and malignant career. Relapses are frequent, the amount of pigment usually increasing with each relapse. A nut-sized melanotic cancer of the skin, removed from the hand of a patient in Chicago by one of the author's colleagues, was not followed by other manifestations of the disease during the ensuing year. At the end of that time the patient passed from observation.

¹ *Union Méd.*, February 5, 1881.

Sarcoma.

Gr. σὰρξ, flesh.

Sarcoma of the skin is characterized by the occurrence, either as primary or secondary developments, of single or multiple, pea- to egg-sized and larger, pigmented and non-pigmented, cutaneous and subcutaneous neoplasms having a marked inaptitude for ulceration but malignant in character, recurring after extirpation, and usually terminating fatally with involvement of the viscera.

The term Sarcoma, meaning a fleshy tumor, was originally employed by Virchow in the designation of this disease. Its anatomical features have been carefully studied since by Rindfleisch, Cornil and Ranvier, Babes, Heitzmann, and others.

Symptoms.—The disease, when affecting the skin, is characterized by the appearance of one or several, usually at first isolated, pea- to nut-sized and larger, smooth, spherical, irregular, or lobulated, cutaneous or subcutaneous tumors. They may or may not be at first attached to the epidermis above and the deeper structure beneath, but eventually contract such adhesions. Between them the skin may not be involved. In uncomplicated cases at this period, the conspicuous features of these lesions are (a) their whitish color, due to their envelopment in an unaltered epidermis; (b) the history of a relatively rapid development, as distinguished from fibromata, epitheliomata, gummata, and lupous tubercles; (c) the speedily declared systemic results of the growth.

Later, the skin between the lesions becomes swollen, infiltrated, painful; and, even before the tubercles desquamate, enormous tumefaction and redness of an erysipelatous type may affect the inter-nodular tissue. In this way an entire limb, only one portion of which is the seat of the tubercular growth, may attain an elephantiasis size, ulcerate at one or more points, and pour out an offensive secretion as a consequence of ulceration of the inflamed integument.

In the course of time, weeks not years, the nodules or tumors of sarcoma coalesce, degenerate by ulceration, and participate in the process of secretion going on in the inflamed and excoriated surface of the skin where they are implanted. Death speedily results, either from exhaustion, intercurrent fever, or sarcomatous involvement of one or several viscera. By the same process the skin lesions may be the product of metastasis from the lymphatic glands or viscera.

The disease occurs in this form over the chest, extremities, and genitalia, though all parts of the skin have been invaded. The patient from whom the tumors were removed, whose microscopical features are represented in the accompanying illustration, was a woman in middle life.

The disease is both rapid in course and malignant in type. In a total of more than fifty thousand cases of disease of the skin reported to the American Dermatological Association up to 1882, only sixteen were sarcomatous, the actual percentage being 0.027.

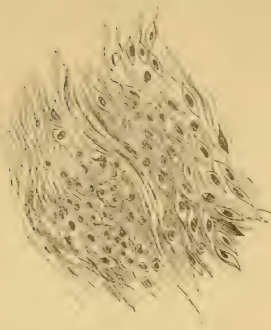
The *Etiology* of the disease is unknown.

According to Babes, sarcomata are frequently congenital, and not rarely formed in early youth on the lids, extremities, and genitalia.

Pathologically, according to the same author, sarcomata are

new-formations of embryonal tissue with abundant proliferation of vascular elements and vessels. As to the former, numerous rudiments of vessels multiply without developing into complete vascular channels, often making eventual connection with preëxisting vessels. In these there may be a complete or incomplete development of blood. In other cases, the parietal portions of young blood- and lymph-vessels proliferate abundantly in an embryonal formation of fasciculi and alveoli, either choking the lumen of the original vessel, or transforming it into vacuoles, cups, and spaces.

FIG. 77.



Sarcoma. Spindle-cells visible in sections of a cutaneous nodule removed from one of the author's patients. (About $\times 300$.)

All tumors of this character are abundantly supplied with cells, the proportion of which to the stroma is markedly in excess. They never resemble embryonal and granulation tissues. The cells may be spindle-shaped, spheroidal, branched, with one or many nuclei, and either large or small. The fibrillar basement-substance, according to Delafield and Prudden,¹ may be present in such small quantity as entirely to escape superficial observation; or so abundant as to suggest the appearance of a fibroma. It may be closely inwoven with the cells in such bundles, or exhibit wide and open meshes presenting the appearance of alveoli. The cells are in intimate relation, and often continuous with the basement-substance. Both cells and substance are in the same close relation with the vascular elements described above, upon which Babes relies so largely for identification of the nature of the growth.

Virchow described originally five varieties of sarcoma: round-celled, spindle-celled, net-celled, giant-celled, and melanotic. In spindle-celled sarcoma the cells may be large or small, and vary so greatly in proportion to the stroma as to furnish the subvariety of fibro-sarcoma, in which the fibrous tissue abounds between the cells. These may be encapsulated or infiltrating. The mass of the tumor is then constituted of a decussating felt-work of spindle-shaped, nucleated, protoplasmic bodies.

Round-celled sarcoma is constituted of globular, protoplasmic ele-

¹ Handbook of Pathological Anatomy and Histology, New York, 1885

ments closely packed together, and separated by a very narrow layer of cement-substance, traversed by delicate prolongations of the living matter which uninterruptedly connect the elements. The vascular supply is scanty. There are two forms of this growth found in the skin: (a) Those with relatively large protoplasmic bodies and large nuclei—large round-celled sarcoma. (b) Those with relatively small homogeneous lumps of living matter—small round-celled sarcoma or “lympho-sarcoma.” The last-named varieties are, as a rule, more rapid in growth and more malignant in career than the former.

In the “alveolar sarcoma” of Billroth there is a delicate connective tissue framework, containing attached globular or pyriform bodies. Heitzmann has recognized this form once, in the skin of the left groin.

The compound varieties of the disease, myxo- and fibro-sarcoma, are occasionally seen in the skin. The formation of secondary tumors is explained, according to Heitzmann, by the transmission of minute particles of the neoplasm to capillaries of a fine lumen, presumably through the bloodvessels, as the lymph ganglia are rarely involved.

The diagnosis rests upon microscopical examination of the new growth in every case. Sarcoma should not be confounded with fibroma, epithelioma, gummata, or lupous nodules.

The treatment is highly unsatisfactory. The surgical ablation of these tumors is apt to be followed by their speedy return.

The prognosis is exceedingly unfavorable, a fatal issue occurring in most cases.

MELANOTIC SARCOMA, or **MELANO-SARCOMA** of the skin may be of primary occurrence or develop from a *nævus pigmentosus*. The lesions are bean- to egg-sized, single or multiple, firm or doughy, sessile or pedunculated, spheroid or lobulated; and vary in color from grayish-brown to deep black. The epidermis which covers them may be discolored, thinned, and intact or ulcerated. The secretion may be of any shade to an inky blackness. The nodules are often surrounded by blackish puncta which eventually develop into tubercles.

In a case lately observed by the author, the left lower extremity of a middle-aged woman was studded with split pea-sized to marble-sized, ink-black masses from the ankle to the middle of the thigh. The larger were always centres of groups of similar pin-head sized black masses. The skin of the region affected was swollen, inextensible, inelastic, and as firm as sole-leather. The disease had rapidly extended from the ankle upward in the course of a few months.

Pathologically, tumors of this kind are found to exhibit the anatomical features of sarcomata in general, with pigment distributed both within and between the cellular elements of the tumor, and between the fasciculi of connective tissue in the framework. It is one of the most malignant and rapidly fatal of all neoplasms. Therapy is unavailing; and the prognosis is grave indeed.

Mycosis Fungoides.

Gr. *μύκης*, a mushroom.

Mycosis Fungoides is an infective disease, characterized by various cutaneous phenomena which result finally in the production of one or several well-defined, firm, reddish tumors, probably due to the presence of specific micro-organisms.

This disease, first named by Alibert, has also been termed, Granuloma Fungoides, Granuloma Sarcomatodes, Lymphadénie Cutanée, Inflammatory Fungoid Neoplasm, and Eczema Tuberculatum.

Symptoms.—The disease is often preceded by the occurrence of inflammatory changes in the skin, erythematous, eczematous, psoriasisiform, urticarial, or lichenoid, which may be transient and recur, or persist. Eventually the skin becomes infiltrated, thickened, and decidedly pruritic. In either case, the characteristic lesions of the disease develop upon a sound integument.

FIG. 78.



Mycosis Fungoides.

(Drawn from an oil painting taken at the bedside of one of the author's patients.)

In a variable period of time, the characteristic tumors of the disease appear upon the face, scalp, chest, or other portions of the body. They are bean- to palm-sized; whitish, pinkish, or pale reddish in hue; firm, well rounded, and distinctly circumscribed. Often they are like flat buttons, movable within the skin. They may then disappear by absorption while others appear; may degenerate by erosion leading to superficial ulceration; or may melt down into deep losses of tissue by ulceration. Coincidentally the lymphatic glands may

enlarge and this adenopathy, as in case of the tumors, subside to be replaced later by similar involvement of the same or other glands.

When the tumors have attained maturity and before involution has begun, their appearance, especially upon the face, is characteristic. They are smooth, moderately firm, sausage-like in shape, often lobulated, of a peculiarly reddish hue, and produce when numerous a lepra-like deformity, closing the eyes by their size or weight, producing the leonine brow and the elephantiasic ear. In the author's case illustrated in the cut¹ the body of the patient was extensively covered with tumors of all sizes, resembling those seen upon the face.

The general condition of the patient at first seems unaltered; later, when the tumors ulcerate, exhaustion occurs and the victim usually dies, as in other cutaneous disorders of similar gravity, as a result of febrile processes, or of an intercurrent diarrhœa, or of cachexia. When the tumors are many and the ulceration extensive, the appearance of the patient is repulsive in the extreme, the exhalations from the body in the highest degree fetid, and the difficulty of securing antiseptic, hygienic care, and comfort for the wretched sufferer well nigh insurmountable.

The fully developed tumors occur upon all parts of the body, more particularly upon the palmar and plantar surfaces, the forearms, the legs, the face, and the back. Often they are in various degrees pigmented, showing then purplish, brownish, or even black colors. They are usually painful, and may or may not be tender. They sometimes, after disappearing, leave atrophic or pigmented depressions as relics of their career. They are said to ulcerate rarely. In the author's patient, ulceration attacked some of the tumors, leaving crateriform excavations in their centres, but this was an exception to the rule, the larger number present preserving their shape in death. In a few, vegetations appeared upon the summit, smeared with a thin and very offensive secretion.

When the tumor is single, and apparently uncomplicated by involvement of deeper organs, extirpation is usually followed by recurrence, either in the scar or vicinity, with added malignancy.

On the backs of the hands the lesions may be no larger than small marbles, with infiltration of the skin lying between the latter, producing thus the appearance of a small, well-rounded, cushion. The epidermis of such an œdematous hand usually exfoliates in silvery-white or grayish scales, more or less adherent. The feet and legs may exhibit a similar appearance.

The disease has been studied abroad by Hebra, Kaposi, Geber, Alibert, Fox, Köbner, Auspitz, and others; in this country by Duhring, Piffard, Wigglesworth, Tilden,² and the author.

Etiology.—The disease is fortunately rare. Dr. Tilden collected the records of thirty cases of the disease and of sixteen deaths. Twenty-three patients were males, and seven females; more than half the whole number were over forty years of age; in only one

¹ Edinburgh Med. Journ., 1883-1884, xxix. p. 592.

² Consult Dr. Tilden's admirable monograph on the subject, in the Boston Med. and Surg. Journ. of Oct. 22, 1885.

fourth of the number had the disease developed before the twentieth year of life. There can be little question to-day as to its infectious character. It is probably produced by a specific microorganism.

Pathology.—Under the microscope, sections of tumors removed from patients affected with the disease, exhibit infiltration of the corium and subcutaneous tissue with small round cells arranged in circular or irregular groups, enclosed in a narrow stroma of fine connective tissue fibres, with often a centrally situated bloodvessel. The epidermis, at first spared, is afterward involved by ulceration. According to Gannett, who examined sections in Tilden's case, the cells corresponded, morphologically, to lymph-corpuscles.

The microorganisms of mycosis fungoides have been recognized by Rindfleisch, Auspitz,¹ and others. An exhaustive report on the subject has been made more lately by Auspitz's collaborators, Messrs. Hochsinger and Schiff;² and Professor Firket,³ of the University of Liège, reports yet another case, illustrated by a photograph, in which micrococci were recognized. These are diplococci or streptococci, 0.9 to 1.2 mm. in diameter, and found clustered together both in tumors and in bloodvessels. They were found not only in the protoplasm of the cells, from ten to twenty in each, but also thickly spread along the connective tissue fibres in the neoplasm. These were cultivated successfully for a series of generations in gelatine and blood-serum. Post-mortem examination has rarely shown visceral involvement.

The diagnosis of mycosis fungoides cannot be made with certainty before the characteristic tumors have been developed. After that, the peculiar shape, reddish color, situation, and relative rapidity of the growth point to the nature of the disease.

From lupus vulgaris, with which it may be confounded in view of the age of the patient, it may be recognized by its relative rapidity of evolution, its failure to ulcerate at an early stage, and the absence of cicatrices in cases where there has been no operative interference.

Syphilis is to be distinguished by its history, its multiformity, its ulcerative type, and its amenability to specific treatment. Lepra does indeed, when occurring in its rare and acute forms, suggest mycosis fungoides of the face. But the presence or history of hyperæsthetic or anæsthetic symptoms, of bullous or macular lesions, and the absence of deforming mutilations in advanced periods, will usually point to the nature of the disease. The tubercles of lepra are smaller than the tumors of mycosis fungoides; more bronzed and less fleshy in color, and of far less general distribution than in several cases on record of the last mentioned disease.

The treatment is unsatisfactory. With the knowledge now possessed as to the nature of the disorder, the bichloride of mercury would certainly be indicated in the local management of the disease.

The comfort of the patient is to be secured by all measures, including anodynes in an advanced stage of the disease, and his strength should be supported by a generous diet and tonic regimen. When the disease is generalized, tepid baths are productive of great comfort,

¹ Viertl. f. Derm. u. Syph., 1885.

² Ann. de. la Soc. Méd. Chir. de Liège, 1886.

³ Ibid., 1886.

and the use of carbolic acid, or some similar agent, is indicated by the fetor arising from the person. The body should be anointed with a bland unguent after each bath. When the lesions are single or few, it is doubtful whether extirpation should be practised.

The prognosis is unfavorable. The patient may survive from a few months only to a maximum of twelve years, the average being two to four years.

CLASS VII.

NEUROSES.

Hyperæsthesia.

Gr. *ὑπέρ*, above; *αἰσθησις*, sensibility.

This is a condition characterized by exaggerated sensibility untended by structural changes in the skin. It may be idiopathic or symptomatic, general or partial, unilateral or bilateral, and may also vary greatly in the degree of abnormal subjective sensation by which alone it is declared. In mild cases, there is unusual sensitiveness to contact with foreign bodies, such as the clothing; in others, the distress occasioned by even the passage of a feather over the surface is almost intolerable. The symptomatic variety of the malady is most common, occurring as one of the several manifestations of hysteria, tetanus, and other nervous disorders, including certain forms of motor paralysis where sensation has been retained, though in a perverted condition. The disease is properly classed with the neuroses of the skin, with respect to whose etiology and pathology much remains to be investigated. Its chief manifestations are the production of itching and pain.

The former is in the skin much more frequently experienced than the latter; and is an almost constant symptom of active cutaneous hyperæmia and exudation. The paræsthesiæ (in which sensations of heat, formication, tickling, dripping or pouring of liquids of various temperatures are experienced) are more often associated with extra-cutaneous affections.

Pain, solely and simply limited to the skin, is, in fact a neuralgia of a nerve having a cutaneous distribution.

[A.] Pruritus.

Lat. *prurire*, to itch.

Pruritus is a functional disorder of the skin, characterized by the sensation of itching in a part or a whole of the body, and unaccompanied by objective symptoms of disease.

Symptoms.—Pruritus is to be distinguished not only from prurigo, a rare disease of the skin already described, but also from the symptomatic sensation of itching which is occasioned by a number of

cutaneous disorders, such as eczema, scabies, and those produced by pediculi. Hebra was first to recognize the independent character of the disease here considered; and it is perhaps to be regretted that he did not give to it a name distinct from that which is also applied to a symptom common to several maladies of the skin.

Pruritus is characterized by a sensation of itching not produced originally by cutaneous lesions. It may be general or partial. In either form, it begins usually by a tickling, pricking, crawling, or itching sensation in the skin, which solicits the sufferer to rub, press, scratch, or otherwise irritate the affected integument. It usually occurs by accesses in the day or night, much more often the latter, occasionally both; and these accesses manifestly occur under the immediate stimulus of some internal or external cause. Thus moral emotions, a cool draught of air, the warmth of the bed, the pressure of clothing, and often the substances applied externally with a view to the relief of the pruritus, suffice to determine a crisis. However firmly the sufferer may determine to avoid injury to the person, in well-marked cases the impulse to scratch becomes well nigh irresistible, and, in the highest degree, tormenting. From the milder, the patient will thus be frequently teased to inflict the severer injuries upon the skin. Brushes, combs, coarse cloths, and even metal instruments, will be employed in exaggerated cases, for the purpose of assuaging temporarily the local distress.

The objective cutaneous symptoms which may be presented are all secondary, and invariably result from self-inflicted injury. In some cases they do not appear, the statements of the patient being the sole basis for a recognition of his disease. This may be the consequence of unwonted self-control, or of the mildness of the malady, or of the transitory character of the lesions produced. Thus the skin may be reddened during a nocturnal paroxysm under the manipulation of the sufferer, and the transitory hyperæmia disappear in the daytime when the skin is submitted for inspection. Not rarely, however, the integument resents the treatment to which it is subjected, by displaying wheals, hyperæmic blotches, reddened papules, excoriations, characteristic "scratch lines," and the minute blood-crusts which indicate that the papillary layer of the derma has been reached and slightly torn. As these causes are among those recognized for eczema and dermatitis, it is not surprising to note that such disorders of the skin may be in this way originated, and still further add to the subjective distress. Skins which have been for years the seat of a persistent pruritus leading to traumatism of the epidermis, are always deeply pigmented.

The localized forms of pruritus, albeit the abnormal sensation is in them limited to certain regions of the body, may occasion fully as much distress as those in which a larger part of the integument is affected. They are of more frequent occurrence than the generalized forms. Pruritus of the anus, of the scrotum, of the vulva, of the vagina, of the scalp, of the nose, of the mouth, of the axillæ, are all localized forms of the disease, two or more of which may coexist or develop in succession.

PRURITUS NARIUM is a frequent symptom of irritation of the Schneiderian membrane. It is thus a common precursory or attendant phenomenon of rose- or hay-asthma; and in some individuals announces the systemic effect of opium and its alkaloids after ingestion. It may result also from the irritation awakened by intestinal parasites.

PRURITUS GENITALIUM is often an exceedingly severe and distressing affection. As the parts in question are apt to be rubbed and scratched in the efforts to secure relief of the itching sensation, orgasmic effects and pollutions are often produced in early youth and extreme age, whose moral effects are degrading. The scrotum, labia majora and minora, penis, clitoris, and adjacent cutaneous and mucous surfaces may be the seat of the pruritus. Search should always be made, in such cases, for ascarides of rectum or vagina, saccharine urine, and uterine or ovarian affections. A perverted sexual hygiene may lie at the root of these disorders. In the severe cases the violence with which the parts are attacked suggests frenzy on the part of the patient, who at times is never content till the scrotum or other parts are bathed in blood. The thickening, erosions, and excoriations of the regions attacked are conspicuous features of the disease.

PRURITUS ANI.—This is a disorder of adults of both sexes, and may coexist with pruritus of the genital region. There is usually nocturnal exacerbation. The anus may become infundibuliform from induration; its mucous surface excoriated; its cutaneous borders seamed, puckered, eroded, and fissured. It is often complicated with, because the origin of, an eczema whose lesions reach upward over the coccyx or forward to the genital region over the perineum. Hæmorrhoids, ascarides, chronic prostatitis, rectal impaction, proctitis, unnatural vices, and diabetes may be all responsible for its occurrence. In all exaggerated forms of pruritus cutaneus, the general health perceptibly fails. Whether from prolonged insomnia arising from the nocturnal exacerbations to which there are but few exceptions; or from the perversion of nutrition incident to the continuous teasing of the nervous system; or yet from the hypochondriacal state into which some patients are plunged by their sufferings, such an issue is often to be expected. It is in fact a complication which may merit, as much as the disease itself, the attention of the physician.

Etiology.—The causes of pruritus are numerous, and the necessity for the discovery of the particular cause in each patient, often makes the largest demands upon the practitioner. The disease may occur at all periods of life and in both sexes, but its exaggerated forms are peculiar to middle life and advanced years (**PRURITUS SENILIS**). It is frequently a reflex symptom of one of several internal disorders. Among the latter may be named, malarial affections, tuberculosis, carcinoma of the viscera, disorders of the liver or kidneys (especially jaundice, Bright's disease, and diabetes), and disturbances of the alimentary canal, including those due to intestinal worms, hæmor-

rhoids, and dietetic or medicinal ingesta. It may be associated with almost every one of the functional, and not a few of the organic, disorders of the uterus and ovaries. The same may be said of its dependence upon the genito-urinary diseases of the male sex, including stone in the bladder, stricture of the urethra, disorders of the testis and epididymis, and perverted sexual hygiene.

Lastly, the moral emotions of a depressing character play an important part in the etiology of pruritus. Mental distress, occasioned by bereavement, separation from relatives, misfortune of all sorts, and anxieties as to the future, often find physical expression in the disease.

Pathology.—The disease is essentially a functional disorder of the nerves of sensation applied to the skin, and is of itself incapable of producing objective symptoms. This fact can, in some cases, be clinically demonstrated, as the seat of the pruritus, even though exhibiting artificially produced lesions, will, when protected from all external injury, speedily regain its normal appearance, the pruritus no less continuing. It is probable, though not certain, that the nerves also in this disease undergo no structural change, but merely convey to the periphery a perverted sensation which is often reflected from some centric point of disturbance.

Diagnosis.—The recognition of general pruritus is usually not difficult, as the secondary results of the disease are apt to be less marked than in its other forms. The complaint of the patient, the absence of cutaneous disease sufficient to explain his symptoms, and especially the discovery of such a sufficient cause in some visceral or systemic disorder, are all significant.

One of the most constant features of general pruritus is visible only when the clothing of the patient is entirely removed. It then becomes evident to the eye that the affected regions are, in order of frequency, those most accessible to the hands. The posterior are much less involved than the anterior surfaces. The small of the back and interscapular regions are usually untouched. The tibial regions of the legs and the forearms, suffer more than the calves and the upper arms. The lower belly and inner faces of the thighs are punished more severely than the breast and outer faces of the thighs and the hips. The clavicular regions are more excoriated than the back of the neck. There is no more precise evidence than this as to the pruritic character of any cutaneous affection, and it is one too often ignored by the practitioner who prescribes under those circumstances for a "disease of the blood."

It must be admitted, however, that when the disease is localized, and complicated, as it frequently is, by an eczema or dermatitis, obscurity often arises. Attention should then be paid to the history of the disorder, which may reveal the fact that the pruritus preceded for some time the cutaneous symptoms, and may reveal even more. Intelligent patients will often assure the physician of the real nature of their malady, by voluntarily remarking that the skin symptoms disappear upon the region which is not scratched, though the pruritus

continues. In all cases the operation of exterior agencies should be carefully eliminated.

Prurigo, with its infiltrated skin, its primary papules, and its severe itching, beginning in early infancy and commonly persisting through life, can scarcely be confounded with pruritus cutaneus.

Treatment.—The degree of success to be obtained in the treatment of pruritus cutaneus, is largely proportioned to the skill with which the cause of the disease is recognized and remedied. Taking into consideration the number of systemic and visceral disorders which may be, in different cases, responsible for the skin symptoms, it is clear that an exhaustive study of the mental and physical history of each patient will be essential at the onset of treatment. The cause once recognized, the treatment should be directed to the special disorder discovered; and this largely requires the skill of the general practitioner. The gastro-intestinal tract, the kidneys, the liver, the bladder, the uterus, the prostate gland, the rectum, and indeed any one of the viscera, may require therapeutic management. For the frequent gastric disorders, the alkalies and alkaline waters, with occasional cathartics and strict regulation of the diet, are often useful. Attention should be particularly directed to any medication to which the patient may have been subjected with a view to a therapeutic effect, and which may have aggravated the complaint. The mineral acids, chalybeates, pepsin, lactopeptin, quinine, strychnine, phosphorus, arsenic, or atropine may be indicated in individual cases and productive of favorable results.

The substances which have been topically employed for the relief of pruritus cutaneus are almost without number, a fact warranting the conclusion that each occasionally fails to afford the desired relief. This is corroborated with every wide clinical experience; that preparation, moreover, which is at one time of the highest value, will disappoint at another period in the history of a single case. Attempts to secure relief by such topical applications should, however, be always made and will often be followed by gratifying results.

First in order of value are baths and lotions of water, hot, warm, or cold, or alternately hot and cold, and medicated by the addition of the sodic bicarbonate or biborate, the potassic carbonate or sulphuret, varying in strength from one ounce (32.) of the last-named to six ounces (192.) of the first-named substance, in thirty gallons of water. Gelatine or bran may often with advantage be added to these, as suggested in the chapter on general therapeutics. Alcoholic, ethereal, camphorated, and carbolated lotions are to be regarded as of equal value. Duhring specially recommends solutions of carbolic acid, in the strength of from five to twenty grains (0.33–1.33) to the ounce (32.) of water, to which a half drachm (2.) of glycerine has been added. Rohé similarly employs boric acid, one drachm (4.) to the pint (512.).

Van Harlingen adds the anti-pruritic effect of potash as follows:

R. Acid. carbolic	3j;	4	M.
Potassæ fus.	3ss;	2	
Aq. dest.	Oss;	256	

Baths and lotions of this character usually procure merely temporary relief; and the treatment in the interval of their application demands the wearing of soft linen, or other unirritating material next the skin, and the free use of a dusting-powder. Those of pure starch are here less useful than those compounded with oxide of zinc and bismuth, as in the "Anderson powder." Gorecki¹ mingles the starch with perfectly pure boric acid.

Dr. R. W. Taylor, of New York, in a valuable paper,² gives the following formulæ:

R. Potass. sulphuret.	ʒiij;	12	
Camphor. spts.	fʒss;	16	
Glycerin.	fʒi;	32	
Aq. font.	q. s. ad fʒvj,	192	M.
Sig. For external use as a lotion, and to be applied by the medium of a saturated strip of lint.			
R. Spts. camphor.	fʒss;	16	
Boracis	ʒij;	8	
Glycerin.	fʒi;	64	
Aq. fluv.	ʒvj;	192	M.
Sig. To be well shaken and applied externally.			

Morphia, in the strength of one grain (0.066) to the ounce (32.), may be added to this and other lotions.

Chloral-camphor, a pungent, syrupy liquid obtained, as suggested by Bulkley, of New York, after triturating an equal amount of the two substances in fine powder, is an antipruritic remedy of value in certain cases applied in a salve containing one drachm (4.) to the ounce (32.) of salve, and is comparable in its action to phenol-camphor, described in the chapter on general therapeutics.

Other lotions may be made to contain corrosive sublimate, one-quarter of a grain (0.016) to the ounce (32.); dilute hydrocyanic acid, a drachm (4.) to the half pint (256.); Goulard's extract, a drachm (4.) to the pint (512.); chloroform, sulphur, alum, oil of peppermint, dilute nitric, acetic, or salicylic acids, tannin, or the zinc sulphate in due proportions.

Often the aqua calcis, medicated with calomel, zinc oxide, bismuth, or calamine, answers well, and, if tolerated at all, the addition of linseed oil, four ounces (128.) to the pint (512.), with a drachm (4.) of one of the inert substances named, flavored with rosemary or bergamot, will aid in relieving the local distress.

Ointments and fatty substances in general are usually not well tolerated in cutaneous pruritus. Occasionally, however, they are of more value than lotions, and may be made to contain one or more of the substances named above, such as carbolic acid, five grains to fifteen (0.33-1.) to the ounce (32.); subnitrate of bismuth, a scruple (1.33) to the ounce (32.), chloral camphor, five minims (0.33) to the ounce (32.), and calomel, five to ten grains (0.33-0.66) to the ounce (32.) of cold cream, petroleum ointment, or lard.

¹ Le Praticien. Oct. 3, 1881, p. 473.

² On the Various Forms of Pruritus Cutaneus, and their Treatment, Arch. of Clin. Surg. Rutledge & Co., 1877.

Tarry substances are usually not well tolerated in the disease, and are, as a rule, when the skin is sound, objectionable as liable to irritate. Duhring, however, speaks well of the liquor carbonis detergens, in the strength of a drachm (4.) to two ounces (64.) of water. This alcoholic solution of coal tar has been for some time in the market of our large cities. The liquor picis alkalinus may be similarly employed. Special attention has been directed by many writers to the treatment of the local forms of pruritus, the principles of which have been in the main described above.

For pruritus of the vulva, Wiltshire¹ recommends decoctions of almond meal, marshmallow, slippery elm, and rice; and in case of failure of the latter, an infusion of tobacco two ounces (64.) to the pint (512.). Vaginal injections of hot water and tampons or cocoa-butter suppositories medicated with opium, belladonna, or carbolic acid are also available.

Many of the medicaments named above are also useful in pruritus of the ano-genital region. The application of very hot water is of decided service. Exception should be made here to the rule with regard to the exclusion of tars generally from the treatment of pruritus; as in the distressing itching of the scrotum and anus especially, they are often essential. The tincture of tar, oil of cade, and oil of white birch will here often be needed. Pencilling any existing fissures with the compound tincture of benzoin or nitrate of silver, is serviceable. The scrotum when attacked, usually requires the use of a suspender or suspensory bag, lined with soft lint or borated cotton, which may also be incorporated with a dusting powder, wetted with a lotion, or smeared with an unguent.

Simon has successfully employed pilocarpine in cutaneous pruritus, both internally and by hypodermatic injection. For the latter, the muriate of pilocarpine is used in doses of one-sixth of a grain (0.011). The same author has administered with good results a syrup of jaborandi, made in the proportion of three parts of the leaves of the plant to fifteen of water, and eighteen of dissolved white sugar, of which two tablespoonfuls are taken at a dose.

In Europe, the favorite local application for relief of pruritus is a lotion containing tar in some form. Usually from five to ten per cent. of glycerine is employed in a spirit lotion. Salicylic acid is often substituted for it: *e. g.*:

R. Acid. salicylic.	℥j;	4	M.
Spts. vin. rectific.	℥ij;	64	
Aq. dest.	℥iij;	96	
Lotion.			

Schwimmer recommends:

R. Alumin. hydrat.	℥jss ;	6	M
Glycerin. }	āā ℥v ;	20	
Ol. oliv. }			
Ungt. moll.	℥x ;	40	
Sig. Ointment			

¹ Brit. Med. Journ., March 5, 1881, p. 328.

Thin lotions of starch-water or oatmeal gruel, iced or cooled in hot weather, to each pint of which a drachm or more of the zinc oxide, or subnitrate of bismuth may be added, are often of immediate value.

Iodoform, the oleate and muriate of cocaine, the latter in from two to four per cent. solutions; one ounce (32.) of the fluid extract of coca, to two to four of water; and linseed oil (especially for pruritus ani), are also recommended.

Jullien recommends in pruritus of the vulva :

R. Zinci oxid.	3vj;	24	
Acid. salicylic.	gr. xv;	1	
Glycerin.	3vj;	24	M.
Sig. Apply as required.			

Chéron, in pruritus of the vulva attending the menopause, has successfully used :

R. Veratria	gr. iij;	266	
Axung.	3j;	32	M.

He also administers in pill form, one one-hundred-and-twentieth of a grain of veratria rubbed up with licorice.

Squibb's formula is :

R. Acid. tannic.	ʒj;	1	
Glycerin.	āā ʒss;	16	
Spts. vin. rectific. }			
Aq. dest.	ad f3iv;	128	M.
Sig. Apply morning and evening on a rag.			

Lastly, it should not be forgotten that many cases of intractable pruritus are best managed when the attention of the patient is diverted from the malady by the distraction incident to travel, aided by change of scene and climate.

Prognosis.—Pruritus senilis is usually an intractable disorder, and, when dependent upon senile alteration of the cutaneous tissues, is incurable. For all other forms of the disease a prognosis should be formulated with reserve. Under the influence of systematic and appropriate treatment, the happiest results are often obtained. Other cases, especially those associated with hypochondriasis, may bid defiance to all remedial measures. Relapse of the local forms of the malady, especially of that of the ano-genital region, is sufficiently common. In many of these patients the treatment serves merely to palliate the disorder, which recurs with every renewal of the cause.

PRURITUS HIEMALIS, PRURIGO HYEMALIS, "FROST-ITCH" or WINTER PRURIGO.—Under the first title, Duhring¹ described a harsh and pruritic condition of the skin, essentially unattended by structural alteration, invading all surfaces of the body, but chiefly

¹ Phila. Med. Times, January 10, 1874. See, also, a later but independent observation by Mr. Hutchinson : Lecture on Clinical Surgery, 1878, vol. i., pt. 1, p. 100, and Brit. Med. Journ., 1875, ii. p. 773.

the inner faces of the thighs, the calves of the legs, and the neighborhood of the joints of the lower extremities, usually occurring in the autumn, and continuing until the following spring. It possesses many features in common with the forms of pruritus already described, including variability in the subjective sensations awakened, nocturnal exacerbation, and the absence of a primary eruption. The secondary results are also similar, being sequelæ of self-inflicted injury in the form of roughness, peri-follicular redness and papulation, torn and fractured hairs, excoriations, blood-crusts, and, in severe cases, an induced dermatitis. It, however, abates in severity with a rise of atmospheric temperature, though the author has occasionally noted persistence of the distress after such weather changes. The affection, moreover, is one which occurs in persons otherwise enjoying perfect health, in those of every social grade, irrespective of the character of the clothing worn and of the habitual use or neglect of the bath. It is, without question, a disease of northern climates, and more particularly of climates like our own where the variations of temperature between the extremes of the summer and of the winter range between one hundred and one hundred and twenty-five degrees Fahrenheit. The careful description by Duhring presents a picture whose accuracy is verified by clinical observation, and which justifies the recognition of the disease as a form of cutaneous pruritus. Its treatment is that detailed above, the author named laying stress upon emollient unguents, glycerine in the form of lotion or ointment, and alkaline baths. In my experience, the dusting powders, when employed after the tepid bath, have proved more serviceable than any fat-containing substances.

PRAIRIE ITCH.—This is a popular term applied largely in the Western, Northwestern, and Southern States of this country to a cutaneous affection productive of itching sensations. It is supposed to be the disorder also popularly described as the "TEXAS MANGE," "OHIO SCRATCHES," "SWAMP ITCH," "LUMBERMAN'S ITCH," etc. A parasitic origin has been claimed for it by several observers, who also insist upon its contagious character and its curability by parasitocides.

The personal experience of the author has led to the conviction that these terms are loosely applied to a group of cutaneous symptoms of diverse origin. The most frequent by far is a pruritus, of the kind described above as pruritus hiemalis, occurring in the autumn, winter, or spring of the year, and aggravated by the coarse and cheaply dyed woollen undergarments of the poor and hard-working inhabitants of the lumber camps, mining districts, etc. With these causes in full operation, there is often aggravation after swallowing drugs for relief of the pruritus based upon the idea of "purifying the blood."

With these cases occur those of undoubted scabies, for the study of which the reader is referred to the chapter devoted to that subject. The proportion between the purely pruritic and purely parasitic cases

of this class cannot be definitely determined. It probably differs in different places and seasons, the proportion of cases of scabies increasing in the lumber camps when they are reinforced by newly arrived immigrants infested with acari. It decreases to probably not more than from one to two per cent. of all skin diseases in the interior villages and towns of the West and Northwest where there has been no immigration for some length of time, and where, after the first onset of sharply cold weather in the autumn, a large part of the inhabitants suffer from pruritic sensations in various degrees.

A review of the somewhat scanty literature on this subject¹ suggests the conclusion that the disorder thus popularly designated is far more rare in Europe than in America. It is possible that the situation of those parts of the United States where this group of skin affections seems to prevail (at a great distance from proximity to the sea-shore and still further separated from the Gulf Stream) may play an important part in the extraordinary sensitiveness of the skin to climatic changes. Certain it is that a great number of these affections are entirely relieved by removal to a suitable climate, more particularly to one of the Eastern, Southern, or extreme Western States.

The therapy of this affection is that of pruritus already described, save where a parasite is recognized as the efficient cause, as in cases of scabies.

The prognosis is favorable, though the disease is at times intractable, persisting or recurring with repeated thermometric variations till the warm season is at hand.

[B.] Dermatalgia.

In this morbid state, the integument becomes the seat of painful sensations, which may and may not be associated with a hyperæsthetic condition. This disorder is much more frequently symptomatic than idiopathic, and partial rather than general, being in the larger number of cases a local expression of some disease of the nervous centres or tracts. It is observed usually in middle life, and in women more than men. Its symptoms vary in severity and in character. The pain is differently described as comparable to that produced by friction, incision, penetration, contusion, or burning of the integument, as also to the passage over the part of streams of very hot or cold water, or the electric current. With this there is commonly associated an undue sensitiveness to contact with foreign bodies. The skin presents no objective signs of disease. The disordered sensations may be limited to the scalp, the region of the spine, or the palmar and plantar surfaces. In the latter situation it is often significant of some obscurely developed systemic disease, such as syphilis, rheumatism, or locomotor ataxia. In a middle-

¹ See two papers by the author, entitled "On the Affections of the Skin, Induced by Temperature Variations in Cold Weather." *Chicago Med. Journ. and Examiner*, March, 1885, and February, 1886; *Obersteiner: Wien. med. Wochenschrift*, No. 16, 1884; *Brodie: Peninsul. Journ. of Medicine*, 1853-54, vol. i., p. 506; *Jones: Kansas City Medical Index*, 1886, with views of several Western physicians; *Clark: Medical Age*, 1886; *Payne: British Medical Journal*, May 3, 1887.

aged woman, lately under my charge, a persistent dermatalgia of the interscapular region was associated with confirmed gastric dyspepsia. In other cases the disorder is dependent upon disturbance of the uterine function. It is occasionally observed as one of the rare signals of the occurrence of the menopause.

It is to be noted that the severe dermatalgia associated with disorders of the uterus in women, is occasionally succeeded by a cutaneous lesion. In a middle-aged dysmenorrhœic patient under my charge, a pea-sized hæmorrhagic bulla appeared over the forehead after several weeks of frontal suffering. Buck,¹ also, reports dermatalgia of the brow and wrists in a young woman who had frequently miscarried, followed by recurrent formation of a vesicle which accomplished its career of rupture, crusting, and erosion, in a stadium of from five to seven days.

The disease is to be differentiated from pruritus and hyperæsthesia of the skin, as also from the affections of deeper parts, muscular, nervous aponeurotic, and visceral. Severe pain, limited strictly to the skin of the lumbar region, with hyperæsthesia, may precede the occurrence of perinephritic abscess.

The treatment is to be directed to the disorder, of which, in the great majority of cases, the dermatalgia is merely a local symptom. Temporary relief may, however, be afforded by the local application of the rubber bag filled with very hot or very cold water; sometimes by an alternation of the two, each for a few moments at a time. Sponging of the part with very hot water is also useful, continued for longer periods, and followed by swathing in cotton batting covered with the Lister protective. The anodynes may also be used topically with advantage; especially cocaine or the oils, combined with opium, aconite, belladonna, and stramonium. In some cases relief is had by painting the part with Squibb's oleate of mercury and morphia, a preparation particularly well adapted to meet the indications presented. The skin should generally, in the interval of applications, be protected by a dusting powder; and the clothing worn next the skin be of an unirritating character. Care should be taken in dermatalgias limited to the trunk of women, lest the corsets be responsible for the mischief. The prognosis depends upon the nature of the cause of the abnormal sensations. In general it may be said that these cases are less persistent and annoying than those of confirmed cutaneous pruritus with melancholia.

Anæsthesia.

Gr. *a*, privitive; *αἰσθησις*, sensibility.

In this condition there is [total or partial diminution of sensibility, with and without structural alteration of the skin. As in the affection just described, the disorder may be either idiopathic or symptomatic, general or partial, unilateral or bilateral, central or peripheral, and in varying grades of severity. Illustrations of the

¹ Phila. Med. and Surg. Reporter, Jan. 18, 1881, p. 677.

disease are furnished in the anæsthetic patches of leprosy, which may and may not exhibit textural skin changes, the disorder resulting from involvement of the nerves. Other diseases and conditions may be accompanied by partial or total loss of cutaneous sensibility, including centric and eccentric paralyses; syphilitic, hysterical, and ataxic disorders; partial or complete anæsthesia of artificial production; the several toxic narcoses; traumatism of nerves by pressure, wound, or contusion; the local anæsthesiæ induced by cold, frigorific mixtures and substances capable of benumbing the sensitiveness of the skin; coma, of whatever origin; and a number of idiopathic cutaneous disorders, including certain of the atrophies, scleroderma, and morphœa.

A curious divorce occasionally obtains between the elements which together constitute the compound sensory impression derived from the touch. The recognition of pain, of degrees of temperature, as also of the form, size, density, distance, weight, resistance, and other properties of foreign bodies, is accomplished largely by the sensory nerves: and the power to appreciate one or several of these objective qualities may be in different degrees impaired. In this respect several forms of what, for want of a better term, may be named cutaneous anæsthesia, are comparable to the conditions recognized in color-blindness. Thus, in some cases, there is appreciation of heat, but not of cold; of form, and not of weight; of pain, and not of objective qualities; and the reverse. A curious illustration of this occurred in the person of a leper under my observation, whose hands were in all parts quite sensitive to the prick of a lancet and to contact with heated substances; who yet exposed them for hours, without protection, to an atmospheric temperature of ten degrees below zero, without becoming aware of even slight discomfort.

The neuroses described above are those of sensibility. Unquestionably there are, beside these, a number of cutaneous affections popularly termed neuroses, which require mention in this connection. Unfortunately, in the present state of science, it is not certainly determined to what special class these affections should be definitely and permanently assigned. Some of them have already been described in these pages. In what follows there is attempted a schematic classification of the symptoms displayed in all, without attempting to discriminate between the parts severally played in each by nerve, vessel, and tissue.

Vaso-motor and Trophic Neuroses.

Under the first of these titles, Schwimmer discusses erythema multiforme, herpes iris, erythema nodosum, urticaria, and the medicinal erythemata; under the second, prurigo and herpes (simplex and zoster).

It is, however, to phenomena of a different character that in these pages attention is directed by these terms. These symptoms are, for the most part, symmetrical in distribution, and largely limited to the

hands and feet, though in some instances, with or without implication of these organs, other parts are invaded, most often the mouth, next the scalp, lastly the trunk. The four groups named below are readily recognized.

In the first group the symptoms are functional chiefly, invading the feet alone, or the hands alone, or both the hands and feet, the symptoms predominating either in the one or the other. These are symmetrical hyperidrosis, anidrosis, bromidrosis; coldness of the organs, and symmetrical asphyxia ("dying" of the hands or feet, when immersed in cold water, *digiti mortui*). With the local phenomena may occur sudden attacks of faintness or giddiness; a pulse ranging from very slow to very rapid action, and rheumatoid pains. Many of these symptoms are associated with those next described.

In a second and larger group may be collected the symmetrical structural changes in the skin and its appendages without destructive degeneration, cutaneous or subcutaneous in situation. With these may be associated the blueness, coldness, or wetness of the organs, referred to above. One or several, usually all, of the nails may be here involved, these appendages becoming rough, dry, lustreless, friable, or gryphotic. They are usually tilted away anteriorly from their nail-beds by a corneous deposit visible beneath the free border. Here, also, may be enumerated, symmetrically arranged, livid or reddish blotches; erythematous, vesicular, and scaling patches; localized hypertrichoses and alopecias [of the legs chiefly]; tyloses of palms and soles [in cases, with recurrent slough of the callosity]; and local anæsthæsiæ.

To this group belong the NEUROTIC EXCORIATIONS of Sir Erasmus Wilson,¹ an example of which was shown at the International Medical Congress of London. The BLEEDING STIGMATA which attracted the attention of the French and Belgian authorities in the years 1873-1875 belong to the same category, as also the "Glossy Fingers" of Paget [q. v.].

In a third group may be placed the phenomena of Raynaud's disease, the cases of symmetrical ulceration and gangrene, and the other ulcerative and degenerating lesions, not necessarily fatal, including the "perforating ulcer of the foot" [*malum perforans pedis*] [q. v.]. Here are classed the cases described by Atkinson as "multiple cutaneous ulceration," and the well-known cases of Eichhoff, Boeck, Simon, Weiss, and Hutchinson.

Léloir and Déjerine presented a case of this character at a recent meeting of the Société de Biologie, in Paris. A young girl, of a family, several members of which were affected with nervous diseases, had, without any apparent cause, several patches of superficial gangrene developed on the cheeks; the small eschars soon separated, leaving a linear cicatrix, which gradually became transformed into cheloid elevations. The first happened three years before, and during this period she had suffered from several similar lesions on the trunk

¹ Lectures on Dermatology. London, 1875. p. 192.

and arms. They began on the skin, by a sensation of pricking, with slight redness and notable diminution of sensibility at this point; in nine hours a white patch, not preceded by phlyctenulæ, formed and underwent, after a short time, superficial gangrene. Later the spot became brownish, detached at the edges, and was finally eliminated, leaving an ulceration and a cicatrix, the anæsthesia which existed around the part finally disappearing.

In a fourth and final group may be set the cases which end fatally, in consequence of an apparently lethal tendency of the disease from the first. Here may be cited Hutchinson's "Form of Inflammation of the Lips and Mouth, which sometimes ends Fatally, and is usually attended by some Disease of the Skin;" and a list of affections with cutaneous symptoms chiefly studied by neurologists, including the "*piéd tabétique*" of Charcot; cases of posterior spinal sclerosis, and cases of syphilitic, tuberculous, and rheumatic disease of the cord and meninges.¹

The pathology of many of these disorders is clear, changes in the central and peripheral nervous tracts having been found sufficient to account for the phenomena (absence of axis-cylinder; thickening of neurilemma; increase of endoneurium). In other cases, no lesions of the nerves have been recognized, and authors have not been wanting who regarded some of the disorders named above as "purely local" in character.

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Myxœdema.

Gr. *μύξα*, humor; *οἰδέω*, to swell,

Myxœdema is a disease characterized by a constitutional cachexia, which usually results in the production of a cretinoid state, and is accompanied by a characteristic pachydermia.

This disorder was first described by Sir Wm. Gull,¹ in 1873; and it has since been often observed, both abroad and in this country, by competent observers, including Ord,² Mahomed,³ Hadden,⁴ Stokes,⁵ Hammond, Horsley, and Ballet. It is termed by the French "Cachéxie Pachydermique." For thirteen cases reported in this country, the reader is referred to an interesting report by Dr. A. B. Ball, of New York.⁶

Symptoms.—The disease occurs in both acute and chronic manifestations, usually after the fortieth year, and in women more often than in men. It may, however, be first noticed in childhood.

There is first observed a persistent and remediless anæmia, gradually succeeded by mental hebetude, sluggishness of bodily movements, and the characteristic change in the skin. The latter becomes dry, waxy, translucent, thickened, firm, and refuses to pit on moderate pressure, the mucous membranes often participating in the morbid process. In the cheeks there is usually perceptible a brawny redness; defined at times as a sharply circumscribed pinkish flush extending quite to the lower lids, which may be, as in Ball's cases, wrinkled, boggy, and swollen. The eyes, for this reason, seem smaller than

¹ Trans. Clin. Soc. London, 1874, vii. p. 170.

³ London Lancet, 1881.

⁵ N. Y. Med. Record, July 10, 1886.

² Med. Chir. Trans., 1878, v. p. 57.

⁴ Brain, 1882, 4.

⁶ British Med. Journ., Oct. 16, 1886.

natural and more widely separated. In consequence of the swelling and immobility of the features, the facies is characteristic: the broad, thick nose; swollen, pendulous, or even everted lips; expressionless eyes; and leathery cheeks producing a mask-like impression upon the observer. The skin of the other regions of the body participates in these changes.

In the triangles at the side of the neck, and also at its back, are "bolsters" of fat. The hair of the head becomes harsh and scanty; alopecia may be complete. Pigment alterations readily occur; moles increase in size; and the general tint of the skin may vary from that of dry parchment to the hue of Addison's disease. The gait is waddling and uncertain. The thyroid gland atrophies. Anæsthesia is of common occurrence. The tongue, uvula, and fauces are often so thickened and immobile as to make the speech both slow and indistinct.

Stokes reports ten cases of acute myxœdema following thyroidectomy. In these cases, beside the rapid occurrence of the symptoms enumerated above, there were convulsive seizures of an epileptiform character.

Etiology.—The cause of this disease is imperfectly understood, though its association with the abolition of the thyroid gland (after pathological change or ablation) is generally admitted. The influence of heredity is distinctly shown in cases reported by Ball, Ord, Saville, and Taylor. One hundred and one, of one hundred and twenty-one cases collected by Ball, occurred in women. The disease may affect children, but is more common in middle life.

Pathology.—The disease seems to be due to the deposit of mucin, or "animal gum," in the meshes of the connective tissue. This mucinoid degeneration may involve the pneumogastric, glosso-pharyngeal, great sympathetic, and other nerves. The psychocortical centres are unquestionably similarly involved. In the skin, the fibrillæ of connective tissue multiply, their nuclei becoming large and distinct. The mucin-yielding cement substance between these fibrillæ appears in large amounts in the interstitial spaces. In a post-mortem examination made by Ord, it was estimated that the skin contained fifty times the normal amount of mucin.

CLASS VIII.

PARASITIC AFFECTIONS.

THE cutaneous disorders of this class possess many features in common with those already described. In them, as in others, are observed the hyperæmic and exudative processes which result in surface lesions of similar type and career. They differ, however

from other affections of the integument, in that they are all induced by parasites of either vegetable or animal origin; and are, as a consequence, commonly characterized by certain special features. They involve the skin and its appendages, their symptoms being at times displayed chiefly in the integument proper, and at others in one or more of the cutaneous appendages, according to the mode of propagation and attack, peculiar in each case to the parasite present. They are all in different degrees contagious; and being induced by local and tangible causes, are usually readily relieved by external treatment. Their importance in cutaneous medicine rests not only upon the facts named above, but also upon the too general misconception regarding their nature, since there are many patients treated by internal remedies ingested vainly for long periods of time, who are yet suffering from parasitic disorders often remediable by very simple local measures.

It should not be forgotten, however, that, distinct though these maladies be in an etiological sense, they are yet practically often commingled with others. Thus an eczematous scalp in a child may by accident become the habitat of lice; and the eczema induced originally by the *acarus scabiei* may long persist after the destruction of the parasite.

The term *tinea*, derived from a Latin word meaning a moth or worm, has by common consent been adopted as a generic designation of all the cutaneous disorders induced by the presence of vegetable organisms.

1. Vegetable.

Tinea Favosa.

Lat. *favus*, a honeycomb.

Tinea Favosa is a contagious disease of the scalp, and less frequently of other portions of the surface of the body, characterized by pea- to coin-sized, sulphur-yellow, and umbilicated crusts commonly traversed by hairs, and produced by the invasion of a vegetable organism, the *achorion Schönleini*.

Symptoms.—*Favus* affects chiefly the scalp, but also occurs upon the so-called non-hairy portions of the skin and the nails. In the former situation it is usually first recognized by the development of minute, sub-epidermic, yellowish or reddish puncta, visible through the translucent stratum corneum at the site of implantation of the hairs. A peripheral circle of delicate vesicles may surround these spots. Puncture with a needle usually gives exit to a puriform matter. In the course of a fortnight or more, these develop into pea-sized and somewhat larger, friable, circular, and elevated crusts, having the yellowish tinge of the lemon or sulphur, and a concavo-convex shape, with the free concave face of the disk exposed. At

the centre of the umbilication thus presented to the eye, one or several hairs usually make exit to the surface. The inferior surface of this disk or scutulum rests upon the scalp, which is either moist and deprived over a circumscribed area of its epidermis or is smooth, dry, reddened, and tender. When the crust is removed by traction upon the hairs or otherwise, a minute cup-shaped depression is left at the point where the lowest level of the favus crust was in intimate connection with the epidermis.

The subsequent features of the crusts, the hairs, and the scalp, are subject to some variation. The first may acquire a brownish or greenish tinge by admixture with dirt or dried pus; may coalesce (*favus squamosus*), or may, by gradual desiccation, exchange the yellowish hue for the dirty whitish shade of old mortar, a substance which they then resemble in dryness and friability. The hairs, invaded both in sheath and shaft, may lose their lustre; become fragile; appear as fractured relics of longer filaments; be readily extracted from their follicles; and be finally shed, leaving behind, hair-sacs destined to fall into atrophy, and incapable of reproducing a pilary growth. The scalp may be first the seat of an extensive hyperæmia or exudation going on to the formation of pus, when the organism is a source of acute irritation in consequence of its active development. Later, when its destructive work may be said to have been accomplished, the scalp surface is bald, irregularly atrophied, or disfigured with minute cicatrices, while here and there remain tufts of hair which have survived the attack.

The lesions may be discrete or confluent, and vary in either case. Occasionally but a few small and ill-developed crusts form upon the surface. The entire scalp is not often covered with a confluent favus crust. The disease is usually chronic in its course. Untreated, it may undergo spontaneous involution after total destruction of all hairs and production of general follicular atrophy, but this is rare. It may last for fifteen or twenty years, and even longer. It is often accompanied by adenopathy.

The disease usually awakens a noteworthy degree of itching; and, as a result, it is not rare to find the favus crusts torn and broken by the comb or the nails.

The yellowish disks of the disease occur also in typical development, though more rarely, upon the surface of the face (including the bearded cheeks, lips, and chin), and upon the trunk and extremities. Dr. George Henry Fox, of New York, has photographed a patient's knee which is covered on its extensor aspect with favus crusts.

When the nails are invaded, light or deep yellowish, circumscribed spots become visible through the nail structure, and by the extension of these, in consequence of the growth of the parasite, the nail-tissue may be thickened, irregularly split, laminated, separated from its matrix, or atrophied. The complication is rare, and supposed to be due to the transfer of the organism from the scalp to the hands in the act of scratching. When it exists, the epidermis fringing the nail is usually also involved.

The odor of fully developed favus is so characteristic that by it alone a diagnosis has been established. It is usually compared to the odor of mice; also to that of the urine of cats. It should not be confounded with the peculiarly disgusting odor of many neglected scalps affected with lice or covered with pustules and filth. The disease not infrequently coexists with other cutaneous, parasitic, and non-parasitic diseases: as, for example, seborrhœa, eczema, and tinea tonsurans.

Etiology.—Favus is always produced by the presence and development of the vegetable organism which is named after its discoverer, the *achorion Schönleinii*. It is a contagious disease, simply because the parasite which produces it, is capable of transmission from man to man, as also from animals to man, and *vice versa*. It shares with other diseases originating from vegetable parasites, the peculiarity of attacking certain individuals specially predisposed to the invasion, either by physical peculiarities of organization, or accidental and fortuitous circumstances. It is most common from infancy to the thirtieth year of life. It is rare in the United States, Austria, and England; and more common in France, Scotland, and Poland. It is said by Bergeron¹ to be a disease of the country, while tinea trichophytina prevails in the cities. This statement is certainly corroborated by the author's experience. Favus is more common in public than in private practice, and the larger number of clinical patients with favus come to the city from the country.

Evidences of contagion are exhibited in those cases where several members of the same household are affected with the disease; but in other cases the absence of a history of contagion after exposure indicates the relative difficulty experienced in propagating the contagious element in the case of favus. Thus one individual, exposed among a dozen who are diseased, will fail to exhibit any favus crusts; and the latter by no means form in all situations of the same body where the fungus can be discovered by the microscope. Aubert,² indeed, presents an argument in favor of the production of the disease by traumatism, the resulting wounds, excoriations, etc., becoming by accident the seat of the disease.

Occasionally favus occurs in special localities with such development among men and the inferior animals as to constitute an epidemic. Girard³ reports thus the simultaneous existence of the disease among sixteen cows and four children in the village of Nantoin, in France. It is propagated also upon the skin of rats and mice, from which it is transmitted to man, often through the medium of the domesticated cat and dog.

Pathology.—Under the microscope, the fungus is readily recognized in the root-sheaths, the bulbs, and the shafts of the hairy filaments near the scalp. At a distance of about two inches from the bulb it ceases to appear in the tissue of the hair. It is also seen upon the

¹ Etude sur la Géographie et la Prophylaxis des teignes, Paris, 1865.

² Rôle de traumatism dans l'étiologie de la teigne favreuse (Annal. de Derm. et de Syph., April, 1881).

³ Lyon Méd., August 18, 1880, p. 547.

free surface of the skin. The favus crust, softened by the addition of a little water or dilute liquor potassæ, may be placed upon the slide of the microscope without other preparation for its study. Under a good one-fourth or one-sixth of an inch objective, the vegetation is seen to be composed of intricate masses of mycelium and spores in great quantity.

FIG. 79.



Achlorion Schönleinii. a, spores; b, c, sporophores. (After CORNIL and RANVIER.)

The former usually preponderate, and appear as narrow, flattened, ramifying, short or elongated, thread-like cells or tubes. These may be simple and empty, or be divided more or less regularly by transverse partition walls, transforming the longer and simple into shorter and compound cells. The latter often contain in their cavities sporules clinging to either side, in which case the mycelial threads are termed sporophores. This is the vegetative part of the cryptogamous fungus; and it develops by multiple subdivision into cells, which may also themselves similarly increase in number, or by the production, at the terminal extremities of certain of the mycelial threads, of spores or conidia. The latter are encapsulated, or strung together like the beads upon a necklace, and appear as round, oval-shaped, angular, or very irregularly contoured bodies, often provided with partition walls like the mycelia, constituting thus compound cells. At the same time, an amorphous granular matter can usually be distinguished in the mass of the fungus. According to Duhring, who has made careful measurement of these elements, the mycelia vary in width from 0.0023 to 0.0030 mm.; and the spores, from 0.0023 to 0.0052 mm.

Examination of the invaded scalp reveals, according to Unna,¹ the presence of the fungus at the lower border of the upper three-fourths of the root-sheaths, where chains of conidia appear among the histological elements. His view is that the cuticle of the hair offers a relative resistance to the growth of the vegetation; that the latter first penetrates the stratum corneum and the follicular orifice, and

¹ Viertelj. f. Derm. u. Syph., vii. p. 170.

then stretches, upon the one hand, into the cortex and medulla, through the cuticle of the hair; and, on the other, passes to the inner root-sheaths, the outer remaining always intact. In the epidermis, the fungus has a predilection for the tissues between the superficial and deep portions of the stratum corneum, stopping as if before a wall, at the living protoplasmic masses of the rete. The superior pars vascularis of the corium exhibits enlarged vessels surrounded by inflammatory elements.

When the nail is involved, the parasite may be recognized in the débris produced by scraping the nail-substance; often also in the epidermis bordering the nail. It exhibits here the same microscopical features as upon the scalp, though in consequence of the denser structure of the nail-substance, its vegetation is usually less luxuriant.

Diagnosis.—The clinical recognition of favus is based upon the presence of the characteristic, yellowish, cup-shaped crusts, often aided by a history of contagion, and the peculiar odor emanating from the scalp. The secondary effects upon the hairs, hair-follicles, and skin, are also, when present, significant. Dr. White, of Boston, in a valuable essay on the "Vegetable Parasites, and the Diseases caused by their Growth upon Man," calls attention to the stage in which the disease is likely to be mistaken for ringworm. It exists before the formation of the crust, and may be characterized by hyperæmia, vesiculation, or papulation, often unnoticed beneath the hairs of the scalp.

The recognition of the disease by the microscope is, however, the most certain method of establishing a diagnosis; and this is readily accomplished. Aubert,¹ in the absence of the clinical features named above, lays stress upon an intense redness of the scalp where the hairs have been cut and the crusts removed, this color being limited to the portions attacked by the disease. The hairs, also, as a result of the disintegration of their elements, are infiltrated by air, and look opaque and black by transmitted light. By reflected light, these appear polished and stratified. It should not be forgotten that, in exceptional cases, favus crusts coexist upon the body with other diseases of prior or subsequent origin, as indicated above. The disease should not be confounded with seborrhœa, pustular eczema, or psoriasis of the scalp, none of which exhibits the special features of a parasitic fungus.

Treatment.—The first indication in the treatment of favus is to cleanse the surface thoroughly from all favus and other crusts and scales which may be present. For this purpose the scalp (if this be, for example, the affected part) is first shorn of its hair with the scissors, and then thoroughly soaked in olive, cod-liver, or other oil, or glycerine. After this, all the crusts are scraped away with a spatula, and the scalp washed clean with hot water and soap, the spirit of green soap being here preferably used. The scalp should be then again anointed with oil, or covered with an emollient poultice. Once

¹ Annal. de Derm. et de Syph., 2m. sér., 11, p. 34.

thoroughly cleansed by repeated soakings in oil and ablutions, it is necessary to resort either to the topical employment of parasitocides (agents capable of destroying the fungus) or epilation (the extraction of the hairs). Often both measures are required. Without further treatment, the scalp, however completely freed from all evidences of the disease, will not fail to show fresh favus crusts in a fortnight or somewhat longer time.

Epilation is practised by the aid of epilating forceps. These should be constructed with an easy spring that will not tire the fingers of the operator; with blades that are sufficiently broad to grasp a few hairs at once; and with smooth, or slightly serrated faces of the blades, as otherwise the hair is liable to fracture in the grasp of the instrument. The surface to be operated upon should be previously anointed with vaseline or olive oil, and the hairs be entirely removed, a sufficient number, covering a definite space, upon successive days.

The tediousness of this process has led to several devices by which it is sought to do away with its necessity. Originally the "calotte" was employed for the removal of the hairs. It was made by smearing a disk of leather with pitch, and applying it over the scalp. When the calotte was subsequently removed by a brisk motion of the hand, the hairs which adhered were forcibly uprooted *en masse*; those remaining being adherent in their sacs in consequence of the fact that they had not been invaded by the fungus. As a substitute for this somewhat brutal procedure, Bulkley¹ has employed adhesive masses, or sticks, which can be melted and made to adhere at once to large numbers of the hairs. When cold they can be withdrawn from the surface with the hairs attached. These sticks are from two to three inches in length, and from one-fourth to three-fourths of an inch in diameter. The hair is first clipped so as to be about one-eighth of an inch in length. The end of the stick is then heated in an alcoholic flame, and quickly pressed upon the scalp. It is thus left in place till quite cold, and removed by bending it over and drawing upon the hairs successively with slight rotation. When free, it is found thickly set with the extracted filaments, which may be burned off in the alcohol flame, thus destroying both the hairs and any adherent fungous masses. The stick is then carefully wiped clean with paper, after which it is again ready for use. The formula for the mass of which these sticks are composed is as follows:

R. Cerae flavæ	ʒiij;	12	
Laccæ in tubulis	ʒiv;	16	
Resinæ	ʒvj;	24	
Picis Burgundicæ	ʒxj;	44	
Gummi dammar.	ʒjss;	48	M.

The parasitocides in greatest favor are, corrosive sublimate in solution in the strength of one-half to four grains (0.033–0.266) to the ounce (32.); sulphite of sodium in saturated solution; pure or diluted

¹ Favus and its Treatment by a New Method of Depilation, Arch. of Derm., vii. No. 2, April, 1881.

sulphurous acid ; spirit of green soap ; tar, croton oil, carbolic and salicylic acids ; petroleum, chloroform, ether, creasote, and the oil of cloves. Ointments are also useful containing mercury (citrine ointment, yellow sulphate or white precipitate), naphthol, benzol, thymol, sulphur, salicyl, pyrogallol, and carbolic acid. Chrysarobin is very effectual in an ointment, though objectionable on account of the staining of the scalp, and, almost inevitably, of the face also. Lenzberg¹ generates sulphur fumes in a dish of red-hot coals attached to a frame, made of wood or paste-board, close to the head of the patient. By means of a paper cap, the fumes are collected and retained for from five to ten minutes, in contact with the patient's hair. During ten years' trial of this plan, he has never been compelled to resort to epilation.

One or more of the methods may be needed, either at the same time or by repetition or alteration, till the fungus is entirely destroyed, the requisite period usually extending over three months. Treatment should then be discontinued, in order to test the result by observation. If, in the course of a fortnight or more, a relapse occurs, the treatment is to be promptly renewed. Upon the non-hairy portions of the body, parasiticides thoroughly applied usually procure a radical relief. When the nail is involved, it should be cut short and carefully scraped or softened by repeated applications of a strongly alkaline lotion, after which a parasiticide may be employed in ointment or lotion.

In general, it may be remarked that patients long affected with rebellious favus, may need a roborant course of treatment and nutritious diet. Cleanliness here, as in all the parasitic disorders, is essentially important. As adjuvants in the treatment of the scalp and nails, it is well to remember that continuous applications of a parasiticide are aided by caps or coats of impermeable material, superimposed upon rags saturated with the medicament employed.

Prognosis.—The prognosis is generally favorable to the ultimate termination of the disease in all cases ; for even the most rebellious and untreated forms are relieved when the hair follicles atrophy. Upon the non-hairy portions of the body, the disorder is rarely severe if promptly and efficiently treated. Upon the scalp, the prognosis is proportioned to the extent, severity, and period of prior invasion of the disease. Early and vigorous treatment of the scalp in healthy children, is usually followed by satisfactory results. Neglect, filth, and systemic malnutrition, are the most unfavorable elements in any case.

Tinea Trichophytina.

Gr. *θριξ*, hair ; *φυτάν*, a vegetation.

Ringworm is a disease of the hairs and hair-follicles of the scalp and beard, as also of the non-hairy portions of the body. In each

¹ Der. prakt. arzt., Feb. 1881.

case it is produced by the presence of the same vegetable fungus, the trichophyton. Inasmuch, however, as each of these regions of the body, when the parasite is present, displays lesions which are more or less peculiar to itself, it is usual to consider each separately. Ringworm of the body is hence designated, *TINEA CIRCINATA*; of the scalp, *TINEA TONSURANS*; of the beard, *TINEA SYCOSIS*.

[A.] *Tinea Circinata.*

Tinea Circinata is a contagious disease of the skin, characterized by macular vesicular, papular, squamous, and rarely pustular lesions, having usually a clearly defined, circular outline, and induced by the presence of the trichophyton.

Symptoms.—Ringworm of the body displays different symptoms, according to the temperature in which the vegetation flourishes, and the various external irritants to which the skin, where it has once been implanted, is subjected.

The macular form of the disease is characterized by the occurrence of one or several pea- to large coin-sized, circumscribed, reddish circles, usually paling under pressure, often at the general level of the integument, occasionally slightly raised above it, forming then a flattened disk. The centre of the circle may be paler, or indeed to the naked eye quite unaffected, transforming the patch to an annular lesion, from which circumstance it originally received the name "ringworm." It develops within certain limits, rarely exceeding five or six inches in diameter, by peripheral extension; and is usually characterized at the outer border by slight, whitish, furfuraceous desquamation. This form of lesion is usually seen upon exposed surfaces of the body where there is less heat, moisture, and friction, than upon others, as, for example, the forehead and neck in moderate atmospheric temperatures. From it may be developed the other forms described below. The disease may recur within the peripheral border; in this way occasionally two, three, and more concentric rings or parallel bands of crescentic outline may be visible in a single patch of disease. The subjective sensations are a trifling degree of itching or burning. Should these rings extend to the beard or scalp, the circinate may coexist with the other varieties of the disease.

The vesicular lesions of ringworm appear as such at the onset, or rise from the macular lesions described above. In the former case, pin-point sized, transitory, and superficial vesicles or vesico-papules spring from a central point or focus, or speedily shrivel till they are represented merely by minute, whitish, branny scales. To these others succeed, always at the periphery, and to these again yet others, the rosy or reddened base on which they rest being sometimes slightly in advance toward the outlying skin. The enlarging circlelets of disease proceed in their course to an evolution quite similar to that observed in the macular forms. The difference, due chiefly to a somewhat more active development of the fungus, is noted not merely

in the type of the lesion, but in the slightly exaggerated pruritic sensations which are awakened. Rarely, both of the forms described are presented with acute symptoms and extensive development, in multiple patches spreading over the face, neck, trunk, and extremities, accompanied by a slight febrile movement and moderate tumefaction of the affected surfaces. As a rule, the eruption is trifling; and may, indeed, be limited to a single ring, or very few circlets about the neck, terminating in the branny desquamation described; but in the severer forms the evolution of the disease may persist for months, and crusts form, whose fall leaves annular pigmentations of temporary duration.

The papular and rare pustular forms of the disease observe the same peculiarities with respect to the clearing of the centre, the annular appearance of the advancing area of involvement, and the production finally of scales and crusts. They represent, however, either a much more luxuriant vegetation of the fungus, or the irritation of the affected part by friction and heat, or, what is probable, the coöperation of the two. They are, hence, most commonly observed upon the back, the belly, the inter- and infra-mammary regions, and the internal faces of the thighs and arms, in which localities they occasionally occur with chronic manifestations. The papules are light or dull reddish, pin-head and larger, solid elevations, roundish, oval-shaped, irregular, or confluent, forming eventually bean to coin-sized, raised disks with a pale, exfoliating, or actively inflamed centre, the so-called "nummular" or "discoid trichophytic erythema" of French authors. The itching is sometimes in these forms severe; and the process may display central recrudescence, as noted above. Pustules found at the periphery have the size and distribution of the other lesions described. They represent merely an aggravated exudative process awakened by the fungus, and the scratching incident to the pruritic sensations excited.

Partly because of the controversy which the subject has aroused, special attention has been directed for some years to the disease which Hebra was first to name, ECZEMA MARGINATUM. It is most marked upon the portions of the body which come in contact with the saddle when a rider is mounted on a horse—that is, the perineum and the inner faces of the thighs, the region well marked by the reinforcing patch in the trousers of the cavalryman. The disease, as encountered here, is termed TINEA TRICHOPHYTINA CRURIS, and occurs in both sexes. It is characterized by extensive exudation, in bright or lurid patches, with a very distinctly defined, raised border, showing a sharp contrast with the healthy skin beyond, from which peculiarity it has its name. It may extend laterally over the groins, upward over the pubes, and backward over the sacrum, being generally defined at the periphery by a crescentic outline. The centre may be paler and less involved, or actively irritated, while the periphery still extends in one or more annular festoons down the inside of the thigh or upward over the regions indicated. The itching is severe; the course of the disease obstinate,

persistent, and subject, in a remarkable degree, to relapse in the same locality. The fungus is always present, whether occurring as a cause or epiphenomenon of the disorder. It was rightly named by Hebra; and deserves special recognition under whatever title it be classified. It is a true eczema, with special features, complicated by the development of the fungus, and aggravated by heat, the moisture of the sweat, and the friction of apposed surfaces of the skin in contact with each other and the clothing. After detecting the fungus in scales scraped from the surfaces thus involved, one is always in such case impressed with the characteristic clinical peculiarities of the disease. It is usually of symmetrical distribution, due to the circumstances of its development, and in this respect differs from the other manifestations of the disease.

When the nails are affected, the disorder is termed *TINEA TRICHOPHYTINA UNGUIUM*, or *ONYCHOMYCOSIS*. These appendages of the skin then become friable, opaque, and lamellated; and are clinically indistinguishable from nails secondarily changed in eczema, psoriasis, and similar disorders of the integument. One or several of the nails of both feet and hands may be affected. When all the nails of both extremities are involved, the disease is rarely of parasitic origin. The microscope is requisite for establishing the diagnosis in such cases, the parasite being detected in the fragments procured by scraping the nail.

Etiology.—The disease is caused by the presence of the parasite, though the latter may be an accident of other cutaneous disorders. The trichophyton was first discovered by Gruby, in 1844; though Malmsten, whose name is often associated with that of the fungus, became identified with its recognition, by his observations during the succeeding year. As a contagious disease, it ranks higher in the scale than favus, being much more readily communicated; and, as a result, much more common. Occurring upon the non-hairy portions of the body, it is often spontaneously removed by the desquamative process which it excites in the skin.

Though the fungus is the essential cause of the disease, its development is greatly favored or retarded by external influences. Attention has been already called to its luxuriance under the influence of heat and moisture. It is, hence, much more severe and rebellious to treatment in tropical countries. It occasionally occurs in epidemic forms. Thus, Gerlier¹ gives the details of such an epidemic in Ferney-Voltaire, where twenty-six cases came under his observation. In some of these the lesions were pustular; in others, tuberculo-pustular. Aggravated forms of the disease seem also to originate in the lower animals. I have seen certain mild types of ringworm transmitted to man from cats and dogs. Gerlier concludes that the most rebellious and persistent forms are derived from the horse; those from the cow being of less formidable character. Tilbury Fox

¹ *Lyon Médical*, April 24, 1881, p. 590, and May 1, p. 7.

reports an especially aggravated case originating in the disease as it existed upon a pony. It occurs much more frequently in children than in adults, presumably from the relatively tender condition of the epidermis in these subjects. It is particularly liable to occur in men whose skins are especially moistened, as in those who work in atmospheres saturated with steam. Several members of a single household will often display ringworm of the body at the same time, having transmitted it, the one to the other. Duhring and Fox are in accord respecting a belief in the need of an appropriate soil for the germination of the fungus, some individuals being thus predisposed to its invasion. It is, however, encountered in both sexes and in all social conditions.

Pathology.—The seat of the fungus in *tinea circinata* is between the strata of the epidermis, that part of it more particularly which

FIG. 80.



Epidermis invaded by trichophyton. *a*, inferior portion of the stratum corneum; *b*, superior portion of the rete. Both exhibit long mycelial threads, with a few ramifications and a small number of spores. (After Kaposi.)

lies immediately beneath the stratum corneum, the superior layers of the rete. Here the trichophyton can be discovered with the microscope; at an early stage of the disease, in the form of spores only; in the course of a few weeks, exhibiting characteristic mycelium. The latter is much more scantily developed than in *favus*; much less branched and reticular; and the threads more slender. Like the elements in *favus*, however, these are jointed and divided into compound cells by partition walls. The spores are also often strung together like the beads on a necklace. The former measure 0.0018 to 0.0026 mm.; and the latter, 0.0021 to 0.0035 mm. (Duhring.)

After the fungus has found its way to the surface of the skin

favorable to its development, it penetrates the layers of the epidermis in every direction from the central point of invasion, the circle thus produced being characteristic of many forms in both the higher and the lower vegetable life. The irritation excited by the presence of this foreign body produces all the subsequent symptoms of a mild grade of superficially seated inflammation; erythema, exudation and fine vesiculation, papulation, and, in severe grades, the production of tubercles and pustules. The desquamative symptoms are exfoliative; and represent, in a sense, the natural effort at relief; this effort, as remarked above, being often successful when the spores and mycelia are thrown off with the effete, horny plates of the epidermis. When the nails are affected, the same fungus can be discovered in detritus of the nail-tissue, which has been macerated in dilute liquor potassæ. Often, as a result of the impairment of the structure of this organ, and owing largely to the stratification of its body, the lamellæ will be found in part to have undergone a caseous degeneration.

Diagnosis.—Ringworm of the body is to be distinguished clinically from eczema, psoriasis, seborrhœa, lupus erythematosus, herpes iris, and syphilis. All the varieties of eczema are noted for their greater degree of itching and infiltration, their much less defined border, coarser scales, decided absence of a circular contour, and history of contagion. Psoriasis does occur in circular and annular patches, often with a clear centre and insignificant, subjective sensations. But its scales are lustrous and the tissue beneath them readily bleeds, showing deeper implication of the skin. The disease is often symmetrical in disposition; occurs by preference upon certain regions of the body where ringworm is relatively infrequent; and its history is that of a chronic disorder. Seborrhœa of the skin exhibits greasy or fatty crusts, which are never characterized by the peculiarly branny condition of the scales seen in ringworm of the body. The distinction between these disorders on the scalp will be given later. Lupus erythematosus is often symmetrical, always chronic, and characterized by the development of multiple, annular patches, enlarging centrifugally from a clearing centre. Herpes iris can be distinguished, first, by its predilection for the extremities; second, by the variegations in color which it displays and which are never seen in ringworm of the hands. Syphilis is multiform in its lesions, usually preceded by a history of infection; and its distinctly circular patches, enlarging at the periphery, all exhibit either atrophic, ulcerative, or distinctly crusted symptoms, which suffice for their recognition.

Pityriasis maculata et circinata is not characterized by vesicles; is often symmetrical in development; occurs in oval rather than distinctly circular patches; and exhibits a characteristic tawny-yellowish shade of color not seen in ringworm. In eczema marginatum, the elevated border of the diseased surface, its situation (groins, armpits, pubes, etc.), its curved outlines, and the occurrence of fresh rings within the older, point to the nature of the trouble.

But the microscopical discovery of the parasite is the chief, and,

indeed, essential, method of diagnosis in *tinea circinata*. By the aid of a good fourth- or fifth-inch objective, the spores and mycelia are readily recognized in the scales scraped from the surface and moistened with dilute liquor potassæ. Duhring calls attention to the care which should be had in distinguishing the fungous elements from cotton or wool fibres, fat globules derived from previously applied unguents for the cure of the disease, sebum, pus, and the nuclei of the epithelia. All confusion of this sort can be avoided by a careful study of the anatomical peculiarities of the trichophyton, recalling especially the parallelism seen in the double contours of the threads, their jointed appearance, their contained granules, and the necklace-like or beaded arrangement of many spores.

Treatment.—The indication in the treatment of ringworm of the body, is the removal of the superficial layers of the epidermis, by which means the spores and mycelia are thrown off from the surface; and, if possible, the simultaneous destruction of the latter. Upon the delicate skins of infants and children, the simpler remedies are first to be employed. Scrubbing each patch with the spirit of green soap, or merely soap and water, will often suffice for its obliteration. The topical application of tincture of iodine is a common and usually effective remedy. The same may be said of dilute acetic, boric, and carbolic acids. Morris's solution of thymol,¹ half a drachm to two drachms (2.–8.) of chloroform, and six drachms (24.) of olive oil, is equally available. One may also use thymol in ointments, half a drachm (2.) to the ounce (32.) of simple unguent, with good effect. Of the mercurials, ammoniated mercury, a scruple (1.33) to the ounce (32.) of ointment; corrosive sublimate, one to two grains (0.066–0.133) to the ounce (32.) of solution; and the ointment of the nitrate, one drachm (4.) to the ounce (32.) of vaseline, are preferable. Sulphurous acid from a freshly opened can, and saturated solutions of the hyposulphite of sodium are as effective as any of the parasitocides, and are often used with advantage as lotions to be followed by an appropriate unguent, always providing against chemical decomposition of the ingredients of the latter. Sulphur- and tar-containing lotions and unguents are useful in more obstinate cases.

Chrysarobin and pyrogallol, in ointment from five to ten grains (0.33–0.66) to the ounce (32.), are brilliantly effective in all these cases, subject, however, to the disadvantage incidental to the staining and irritative effects they produce. They should be used with caution upon the skins of children, and always tentatively at the onset. In cases of ringworm on the face of male adults, close to the beard or scalp, one may employ these remedies with a view to insure the non-invasion of the pilary follicles by the fungus, whose prompt destruction may become then a matter of urgency. Wilkinson's ointment, recommended by Kaposi, is also useful in the treatment of aggravated forms of ringworm of the body, but should be restricted to such cases. For other and more urgent reasons, caustic potash

¹ Lancet, 1881, pp. 164 and 241.

solutions should be reserved for exceedingly intractable cases. Sometimes a combination of several of the simpler remedies named above may be serviceable, as in the following formula :

R. Lac. sulphur.	ʒijss;	10	
Sapon. virid. spts. †			
Lavandul. tr.	āā ʒvj;	24	
Glycerin.	ʒss;	2	M.
			[Kaposi.]
R. Iodin. pur.	ʒij;	64	
Ol. picis [sp. gr. 0.853]	ʒj;	32	
Mix with care, gradually.			
R. Creasoti.	℥xx;	1 33	
Ol. cadini	ʒij;	12	
Sulphuris præcip.	ʒij;	12	
Potass. bicarb.	ʒj;	4	
Adipis	ʒj;	32	M.
To be used in obstinate ringworm of adults.			[Van Harlingen]

Dr. R. W. Taylor applies the bichloride of mercury, four grains to the ounce, in tincture of myrrh. Dr. Perry, of California, uses the metal in one-half of the strength last named, dissolved in sulphuric ether. Foulis, of Edinburgh, recommends iodine dissolved in the oil of turpentine or benzine, the fluids named penetrating with greater ease than others, to the deeper portions of the skin.

Other articles advised by authors are the oleates of mercury and copper (?), croton oil, glacial acetic acid, cantharidal collodion, petroleum, and pyroligneous acid (Thomas).

The thorough application of the remedy selected for use, upon the integument quite freed from its scales by scrubbing with soap and water, is a matter of some importance. When the solution of sodic hyposulphite is employed, the previous application of dilute vinegar and water by sponging, renders the agent more effective, for evident chemical reasons. Overtreated skins, or those to which too strong a parasiticide has been applied, require subsequent relief of the induced irritation by the simpler bland dressings. The inert dusting powders, even when not thus indicated, are often useful when there is distinct vesiculation; and in simple cases may be the sole remedies required, as then the disease is self-limited in duration.

Liborius, having observed in China that the tincture of an unknown fibrous root was used successfully as a remedy for ringworm, obtained some of the plant, which was found to be the *Rhinacanthus communis*, whose leaves, bruised and mixed with lime juice, are used in India as an application for the same complaint. Liborius has since obtained from the root a quinine-like body, supposed to be the active constituent. It resembles chrysarobin in being antiseptic and anti-parasitic. He proposes to call it rhinacanthin, and represents it by the formula $C_{14}H_{18}O_4$.

The internal treatment of patients affected with ringworm, by means of tonics and roborant measures, may be demanded by the

systemic condition, but has no recognized influence over the disease itself.

When the nail is involved it should be thoroughly scraped, and then kept moist by wearing over it the rubber cots sold in the shops for the use of sportsmen, fishermen, and others. In this way a partial maceration of the nail substance is secured, and the action of any one of the parasitocides named above, greatly aided.

Prognosis.—The disease is often self-limited, and is generally, under the simplest treatment, satisfactorily relieved. Eczema marginatum, especially in the crural region, may be obstinate; and this because it is an eczema as well as a parasitic disease, and therefore subject to the relapses and chronic phases of the first-named disorder. Other intractable forms of the malady do, however, occasionally occur in adults, usually in tropical climates and tropical temperatures.

TINEA IMBRICATA. TOKELAU RINGWORM. BURMESE RINGWORM. MALABAR ITCH.—Under these names and others of similar character, have been described exaggerated forms of a contagious cutaneous disease produced by a vegetable parasite whose identity with the trichophyton, though not established, is probable. *Tinea imbricata*, as described by Manson; the Tokelau Ringworm, described by Turner, and the affection reported by MacGregor as occurring in the Solomon Islands and the New Hebrides, may be identical. The parasite does not extend deeply within the corium, but is found in luxuriant vegetation with preponderance of rather irregularly contoured spores. The clinical symptoms are, exaggerated desquamation of ichthyotic flakes in large concentric circles even a quarter of an inch apart; the formation of these concentric rings by recrudescence of the disease within its annular limits; the production of large festoons of lesions even upon the exposed surface of the face; and evidence, at times, of excessive irritation of the skin excited by the fungus, in the form of pustular and even furuncular and tubercular lesions.

According to Manson, the fungus of *tinea imbricata*, differs from that of ordinary ringworm in that the former is more abundant; its threads longer, and its spores more irregularly outlined.

[B.] *Tinea Tonsurans.*

Tinea Tonsurans is a cutaneous disease of the scalp, characterized by the occurrence of one or several, circumscribed, non-elevated or tumid patches, over which the hairs are usually fractured at a point near the integument, producing thus the effect of partial baldness, while the scalp itself is the seat of vesiculation, scaling, or crusting, the disease being produced by the presence of the trichophyton.

Symptoms.—The differences to be particularly noted between ringworm of the body and ringworm of the scalp, depend largely upon the fact that in the latter, the fungus makes its way to the hair-

follicles, and there finds the nutriment for its multiplication and development.

It is usually first observed in the form of circumscribed, small coin-sized, roundish patches upon the scalp, wholly or partly covered by minute, whitish, slate-colored, grayish, or dirty yellowish scales. Rarely, the formation of the latter can be noted as consequent upon an hyperæmic and reddened condition. Still more rarely, pin-point sized, transitory vesicles or pustules precede. The hairs upon such a patch seem irregularly clipped short near the surface or, as it is frequently styled, "nibbled" off, thus producing the effect of partial baldness in the involved area. Among them may be often found lustreless, dry, long, and fragile hairs, which break upon slight traction or flexion. The patches may increase in number and spread individually in area till, in the course of weeks or months, the entire scalp is invaded. In the older patches, young and downy hairs may be seen here and there, pushing up among the stumps left by those that have fallen. One or more of various phases of the disease may be presented in its subsequent evolution. Thus a single patch may extend to the size of a large coin or the palm, and the disease be throughout limited to that area. Again, as just related, almost the entire scalp may be covered by relatively small or enlarging patches, or, even without the occurrence of any distinct patch, isolated hairs or tufts of hairs here and there over the entire scalp may exhibit evidence of impairment. The disease may be acute or chronic in its course. Instead of assuming the dry and squamous type described, acute and exudative symptoms may develop, in which event the rare vesicular and pustular lesions are succeeded by the exudation of a gummy secretion and the formation of crusts. Lastly, the variety known as kerion may be produced, which is described below.

Pruritus, in various grades of severity, though usually mild, is induced by the disease; and often the patches are altered in appearance by the traumatism produced by the finger-nails and the comb. When the scalp is very generally invaded by the squamous form of the disorder, its appearance is very similar to that noted in diffuse seborrhœa, chronic eczema, and psoriasis of the scalp, except that the hairs are less pasted to the surface; are more lustreless, friable, and contorted in shape; and much more often represented by stubble or stumps. The disease may occur coincidently with ringworm of the body, and indeed at times a ring may be detected, half of which on the neck presents the typical aspect of *tinea circinata*, and the other half involving the scalp exhibits the features here described. Stowers,¹ Sangster,² as also Hutchinson, Tay, Hillier, Baker, and others have recorded cases in which the disease coexisted with alopecia areata. The author has certainly observed this occurrence but in one case, where the evidence was conclusive that there was mere coincidence and no causal relation between the disorders named.

Geber asserts that after exfoliation of patches of ringworm, the

¹ *Lancet*, 1881, p. 326.

² *Id.*, 1880, p. 303.

scalp may become absolutely bald, smooth, and glossy, but that hair-stumps and scales in the environment indicate the nature of the disease, which is thus often mistaken for *area Celsi*, or *alopecia areata*.

Lastly, it is to be noted that here also at times the efforts of nature are successful in procuring spontaneous relief. With the defluvium capillitii and exfoliating epidermal plates, the fungus may be finally removed; the resulting alopecia be followed by a growth of healthy pilary filaments; and, even though years be required for this long process, in the end no trace of the disease be discernible.

Etiology.—Ringworm of the scalp is produced by the same fungus as that recognized in the etiology of *tinea circinata*, the *trichophyton*. It is frequently observed in children of both sexes, especially in those gathered together in schools and public charities, where it may spread very generally from one to another, and require months and years for its extermination. It is a highly contagious disease, but yet requires unquestionably a suitable soil for its development. I have been frequently impressed with a fact in this connection to which Dr. White¹ calls attention. When there is ringworm on the face of an adult, even of rebellious form, in the course of which the beard may be extensively affected, the scalp is usually spared. Ringworm of the scalp in the adult and aged is, indeed, among the rarest of cutaneous accidents. Among the methods of transmission in children are, the use upon the heads of the unaffected, of brushes, combs, wearing apparel, sponges, towels, etc., which have been employed upon persons exhibiting ringworm of the body or head. It must be remembered that *tinea circinata* may transmit *tinea tonsurans*; and it is by tracing the course of the two forms of the disease, that the sources of contagion can be ascertained in any series of cases. The disease is one rather prevailing in the cities than in the country; and in this respect also differs from *favus*.

Pathology.—The disease is produced in consequence of the invasion of the scalp, and follicles, bulbs, and shafts of the hair, by the *trichophyton*, the fungus already described as the cause of *tinea circinata*. This vegetable mould is much more abundantly developed about the hairs than the *achorion Schönleini*, and its presence is, hence, much more readily demonstrated in these structures.

Robinson² has lately excised a portion of a scalp affected with *tinea tonsurans*; and found the stratum corneum, especially in its upper layers, largely invaded by spores, as also the rete, the external root-sheath of the hairs in its upper portion, the corium, and subcutaneous tissues. Mycelia were abundant in the mucous layer. He concludes that the anatomical seat of the disease differs in different cases.

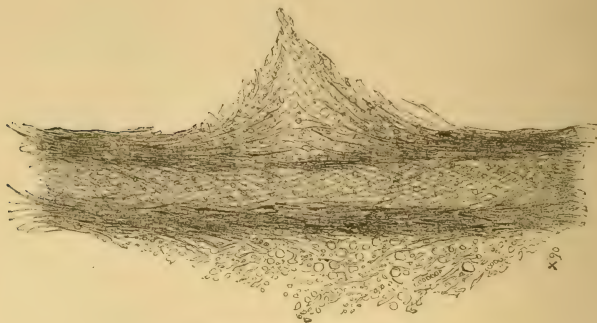
Under the microscope the hairs themselves, in advanced cases, are seen to be greatly altered. The bulbs are distorted, misshapen, or withered, and often stuffed with spores which greatly predominate

¹ Loc. cit.

² New York Medical Journal, 1881, vol. xxxiii. p. 289.

over the mycelia. At times the base of the bulb will show a brush-like expansion, and in this respect resemble the free ends of the stumps of the hairs above, which have a jagged, bristle-like appearance, from the division of the shaft into many filaments between

FIG. 81.



Hair invaded by the trichophyton.

which spores in abundance are visible. The shaft is often longitudinally split, where the parasitic growth has mechanically forced apart its elements, and its cuticle may be peeled off, or curled above and below away from the axis, with spores protruding at such points. Conidia can be discovered much further upward along the hair and distant from the scalp than in favus; often, indeed, upon its free surface. Occasionally a few mycelial threads may be recognized, either longitudinally or transversely arranged as regards the axis. It is probable, however, that the relative preponderance of spores and mycelia in these filaments is determined by the stadium of the disease in any given case. In the earlier stages of the affection the elongated threads may be discovered in larger quantity; and as they interfere less with the integrity of the fibrous tissue, the hair may usually at these times be extracted from its follicle without fracture. Later, the threads disappear and the conidia are infiltrated throughout every portion of the shaft which then breaks, often upon the slightest traction. One unaccustomed to microscopical examinations, with a view to the detection of the parasite, should be careful not to mistake for these threads the delicate lines traversing the surface of the shaft exposed to the objective, and which represent the edges of the cuticle of the hair. The fungus, though ordinarily refractory to the action of coloring matters, will be stained by eosine and methyl-violet. The scales found upon the affected scalp also exhibit traces of the trichophyton under the microscope, though to a less extent than the invaded hairs. In exceptional cases, however, the epidermis of the scalp seems to suffer as much as that of the non-hairy portions of the body.

Diagnosis.—The recognition of a typical patch of ringworm of the head is simple. The branny scales, stumps of hairs, and distinct contour of the invaded area, are always in the highest degree suspicious symptoms. It has been stated, however, that the general development of tinea tonsurans over the scalp produces a condition very like that seen in other diseases. In such cases the microscope must be employed for a decision as to the nature of the process. I have seen the whole vertex unnecessarily epilated in seborrhœa sicca, when no parasite could be found. But in seborrhœa there is usually a symmetry of involvement which even aggravated cases of ringworm of the head fail to assume; and even though pasted down, atrophied, changed in color, and loosened in their follicles, the hairs are rarely broken off near the scalp in seborrhœa. In seborrhœa, psoriasis, and squamous eczema of the scalp, there is, moreover, no history of contagion; the scales are in each disease different in color and character; and the hairs in the two last-named affections are firmly seated in their follicles, and only in severe cases present nutritional changes. The diseases, moreover, are usually chronic in their course. In any doubtful case, apart from microscopical evidence, thorough removal of all scales from the scalp by shampooing with green soap and hot water, will reveal the nature of the disease present.

Alopecia areata, as has been noted above, may coexist with ringworm, but it is pathologically distinct from it. The patches in the first-named disease are uniformly smooth, and the hair falls from them *en masse*, without lesions, stumps, or other traces of its former development in the regions affected. I have, however, often seen blackish points or dots distributed over the areas which characterize this form of alopecia, and which certainly constitute suspicious symptoms in any case. In such event, one may be able to pick out with a fine needle this blackish point from the patent follicular orifice, and find it to be a particle of dust accidentally lodged in the depression. It is not, as in comedo, free pigment which has found its way to the surface; nor, as in ringworm, the stump of a hair on a level with the superficies of the scalp. In favus, the cup-shaped crust will sooner or later betray the character of the disease to the naked eye.

Confirmatory evidence as to the nature of the disease will often be furnished by a careful search for the source from which it was derived; and for obvious reasons this should be always attempted.

Ringworm of the body occurring upon the individual patient affected with tinea tonsurans, or other members of the same household, and suspicious "mangy" patches upon horses, dogs, cats, rabbits, white mice, or other animals with which the child may have been in contact, should always receive attention.

Treatment.—The indication for the relief of the disease is the destruction of the parasite; and there can be no question but that this may be accomplished in some cases without having recourse to epilation. The parasitocides named in connection with ringworm of

the body, if thoroughly applied in simple cases, after clipping or shaving the hair and an efficient scrubbing of the patch with spirit of green soap and water, will occasionally be followed by permanent relief. Prominent among these parasitocides may be named: pyroligneous acid, sulphurous and boric acids, saturated solutions of the sodic hyposulphite, acetum cantharidis, tincture of iodine, Morris's solution of thymol in chloroform and olive oil (see *tinea circinata*), ointments of boric acid and sulphur, of each a drachm (4.) to the ounce (32.) of vaseline, and chrysarobin, the action of the latter being carefully limited to the patch of disease by the aid of a skull-cap.

Epilation is, however, a valuable, and occasionally essential, method of treating the disease; and may be practised, as already recommended, in considering the treatment of favus. The scalp in each case should be first oiled, and cleansed by the soap shampoo, and, after the epilation is performed, an appropriate parasiticide should be employed. The calotte, made by spreading pitch plaster upon leather or muslin, is a brutal substitute for epilation in order to remove the hairs, but the sticks recommended by Bulkley may be employed, the formula for the preparation of which has been already given. In each case, the epilation should remove a zone of sound hairs encircling the diseased patch, that the encroachments of the fungus may be in every possible way limited. It should not be forgotten, however, in the treatment of *tinea tonsurans* by both epilation and parasitocides, that in chronic cases these methods, in the hands of the most expert, have failed for consecutive months to relieve radically the disease; that even the most inveterate cases, in the course of time and as adult years are reached, are spontaneously relieved without permanent alopecia; and that no remedy or procedure is ever justifiable which is capable either of producing follicular atrophy, or an effect worse than that wrought by the disease itself.

Coster's paste is popular among English practitioners, including Stowers, Fox, Liveing, and others. It contains two drachms (8.) of iodine in crystals, slowly dissolved in the oil of tar; and is painted over the part at intervals of a few days. It is most useful in circumscribed patches of the disease. Among other remedies employed, some of which have been described in connection with ringworm of the body, may be named, the corrosive chloride, ammonio-chloride, red oxide, oleate, and ointment of the nitrate of mercury; pure carbolic acid and carbolated glycerine; and sulphur, chloroform, ether, and tar in ointment.

In order to be effectual, the treatment pursued must be persistent, thorough, and always accompanied by frequent washings and soapings of the affected part.

The induction of suppuration in the hair-follicles (or a species of artificial kerion) by the aid of croton oil liniment, has been praised by Alder Smith and Wyndham Cottle, of London, and lately, in a modified form, by Magee Finny, of Dublin. By the latter process, one hundred parts of the oil are mixed with fifty each of cacao

butter and white wax. Sticks are made of the compound which can be thoroughly rubbed into the part affected. By both methods, it is claimed that no pain is produced, nor is permanent alopecia the result. A solution of salicylic acid is applied after each treatment, and a subsequent poultice may be also needed. In these cases the parasite is presumably destroyed by the suppuration excited.

Dr. James Foulis, of Edinburgh, claims to relieve the worst cases in a week by the following method: The patient (usually a child) is seated before a basin of warm water with a towel fastened around the brow so as perfectly to protect the eyes from the trickling into them of the fluids used. About the patches, the hair is cut short; if the patches are numerous, the entire scalp is closely cropped. The oil of turpentine is first thoroughly rubbed in with the finger, causing the dirt and greasy scales to disappear while the short broken hairs are seen to stand up like bristles. The scalp is then well shampooed with hot water and ten per cent. carbolic soap. The head is then well dried and two or three coats of iodine in tincture are painted over each affected patch and permitted to dry. Carbolic oil, one part to twenty, is then rubbed into all the hairs of the head with a view to reaching any spores among them. The treatment is applied once or twice daily according to the severity of the case for a week.

As in the case of ringworm of the body, *tinea tonsurans* is not remediable by internal treatment. Such internal medication, however, may be indicated by the systemic condition of the little patients, and should be in each instance such as that condition suggests.

Prognosis.—The ultimate prognosis in every judiciously treated case of *tinea tonsurans* is favorable, since all patients ultimately recover from the disease *per se*. Under the best treatment many cases will prove tedious, month after month passing without marked improvement. The disease, however, in a large proportion of cases among children surrounded by proper hygienic conditions, especially as regards cleanliness, is readily relieved.

TINEA KERION.—The occurrence of active inflammation in a usually circumscribed portion of the scalp affected with ringworm, is at times followed by certain peculiar features, the assemblage of which has been designated by this term. This complication of the disease was recognized early in the history of medicine, by Celsus, whose name has since been associated with its lesions (*KERION CELSI*, from *κηρίον*, a honey-comb). Tilbury Fox, in 1866, was first to recognize its identity with *tinea tonsurans*; and it has since been the subject of a number of interesting papers by Tanturri, Maiocchi, Schilling, Bardazzi, Auspitz, and Wilson. In this country, Dr. I. E. Atkinson,¹ of Baltimore, has made it the subject of a valuable memoir.

The symptoms are, the occurrence of acute inflammation, usually

¹ Arch. of Derm., vol. vii. No. 1, Jan. 1881.

circumscribed, though occasionally diffuse, in a portion of the scalp where a tumor forms which may project to a considerable distance above the general level. In time the appearance presented is quite suggestive of anthrax, as from tumid orifices of numerous distended follicles, a viscid, semi-transparent, and puriform fluid exudes. The latter is highly characteristic. The hairs loosen and fall. When the view of the tumor is not obscured by the pilary growth, it appears as a flattened hen's to turkey's egg-sized, boggy, semi-globular tumor, its surface congested, reddened, glazed, and often exhibiting other evidences of inflammation, with split-pea sized, pustule-like lesions distributed over its surface, or, when these have ruptured, the gaping apertures described above, from which the gummy secretion is poured in varying quantities. Modifications of this condition occur, such as the production of a true subcutaneous abscess with fistulous sinuses. The sensations awakened are usually painful; the course of the disease is chronic. It may begin with the usual symptoms of ringworm of the head, though often there is no history of the latter. The complication is a rare one. But five cases in all have come under the author's observation; two of these were children in one family, brought to him from a neighboring State.

The parasite may and may not be found in patches of kerion, according to the acuity of the present or precedent inflammatory process. If the latter be of high grade and suppuration result, the fungus is destroyed, a result whose attainment has been attempted in the production of an "artificial kerion" by means of croton oil for the relief of tinea tonsurans. In the earlier stages, well described by Atkinson, and represented by merely deep-seated follicular inflammation, with pustular development about the hair-shafts, the latter may be seen microscopically to be invaded with spores.

The treatment is either by the milder parasiticides or by the methods proper for the relief of ordinary phlegmonous inflammation of the scalp, according to the stage of the kerion.

[C.] Tinea Sycosis.

Tinea Sycosis is a contagious disease of the region covered by the beard of the adult male, in which the integument, hairs, hair-follicles, and subcutaneous tissues may be involved, characterized by the occurrence of macular, papular, vesicular, pustular, or tubercular lesions, owing to the presence of the trichophyton.

Symptoms.—The disease is best studied at its onset, in the beard of a blonde subject with relatively fine downy hairs, where are presented the typical features of tinea circinata, ringworm of the body. One or several, reddish, pea- to small coin-sized rings become visible, with pin-point sized vesicles, branny scales, and often, indeed, no other lesion save an hyperæmic, scarcely elevated margin at the periphery. The hairs over the patch may be fragile, and clusters

here and there betray evidences of change. With proper treatment the disorder may not progress beyond this point.

In other cases the very slight degree of itching awakened by the process just described, may be intensified, and large plaques form, a portion of which may extend from the region of the beard over the face and neck, or *vice versa*. When fully developed, a phlegmonous disorder is produced which bears some analogy to the kerion just described, and which may so actively progress that it is first seen in typical development. The skin is congested and reddened, with sub-epidermic (or débris of ruptured) pustules at the orifices of the pilary follicles; and is studded irregularly with firm, pea- to nut-sized papules and tubercles. The latter are usually aggregated in masses or lumps which involve the skin and subcutaneous tissues; and are firm, often tender and painful, rarely boggy and furuncular. When pierced, they give exit to a characteristic, muciform, gluey, yellowish, and sticky fluid, puriform yet differing from pure pus, which rapidly dries into crusts. These composite lesions are usually circumscribed in a given area of involvement, very rarely covering the region of the beard in symmetrical disposition, more often limited to one cheek, or the cheek and chin. Duhring has an admirable portrait of this disease in his Atlas, one of the most faithful representations of a cutaneous affection which it is possible to produce.

The hairs in the invaded region are involved as in ringworm of the scalp. These filaments break near the surface of the integument, leaving ragged stumps; or spontaneously fall, after being loosened in their follicles.

The ease with which they may be epilated is really one of the most characteristic features of the disease; they are slipped out of their follicles as readily as if they had been oiled; or, as Anderson remarks, "as easily as a pin can be pulled out of a pin-cushion." They are then often whitish because enveloped in the fungus producing the disease. In either event, the resulting, gradual thinning, or removal of the hairs, renders the disease of the surface more conspicuous and deforming. At the edges of a patch thus exposed, deformed, lustreless, contorted, flattened, twisted, or split hairs may be found. Occasionally the features of the patch are changed in consequence of the unusual degree of suppuration excited. In such case the pustules burst, and their contents concrete into dry crusts about the stumps of shafts of surviving hairs, from which circumstance the disease has received its name (sycosis, *σῑκων*, a fig). Rarely, a conglomerate crust covers the entire region with an excoriated, inflamed, and secreting surface beneath.

During the last few years the author has had the opportunity of treating a number of formidable cases of tinea sycosis in the persons of farmers, resident in the extreme western States, where the disease was long untreated and unrecognized. A few of these severe cases were produced after shearing sheep having diseased pelts. In these cases the cheeks, lips, and chin were the seat of large-nut to small-egg sized, cutaneous and subcutaneous, soft, boggy, and pus-filled

tumors, accompanied by excessive soreness of the entire throat and neck, the hair falling from the follicles in large masses, and as if lubricated to facilitate their escape.

Etiology.—The disease is always produced by the trichophyton, the fungus described as the cause of ringworm of the body and scalp. It was first discovered by Gruby, in 1844. Dr. White,¹ of Boston, has called special attention to the frequency of its origin in the barber's shop, a fact which common experience verifies. It is usually the irregular visitor to these establishments who is first to supply the germs of the disease. No individual proprietorship in mug, soap, brushes, and razor can secure, against danger of infection, the person whose razor is drawn over a common strop, whose cheek is handled by unwashed fingers which have been recently passed over an infected face, or whose beard is combed, brushed, or rubbed by the implements and towels in common use at these establishments. The remedy is twofold; first, the full beard should be worn without shaving, as it is very rare to find bearded patients of this class affected with tinea sycosis; second, where the whole or any part of it is to be removed, every adult male should learn how to shave himself. The physician should, in this connection, be for medico-legal reasons put upon his guard against hastily deciding both as to the nature of the disease of his patient and the source from which it was derived. Of the first, he can become certain by his microscopical investigations. Of the second, he can only become certain by obtaining possession of facts far beyond the reach of the average practitioner. A medical gentleman in a neighboring State recently sent the author for examination some hairs from the beard of a male patient affected with tinea sycosis. Before receiving a report confirming the diagnosis, this physician was sued by the barber in whose establishment the disease had been probably acquired, on the ground of libel.

It is difficult to determine the frequency of the disease from statistics. The affection is certainly relatively rare, and yet more common than is frequently supposed to be the case. In the author's practice it is of irregular occurrence, months passing without a single case coming under observation, after which several may be noted in rapid succession. The statistical returns of the American Dermatological Association include eighty cases in the year 1885; ninety-seven in the year 1886; and but twenty-two in the year 1887.

The disease, being contagious, is one affecting men in all stations of life, and these usually at a period rather under than over the fortieth year. The author has certainly treated for this disease more men with light hair and eyes, and light brown, reddish, or sandy beard, than those having darker shades of hair and eyes, a fact to which Mr. Morris has called attention in connection with tinea tonsurans.²

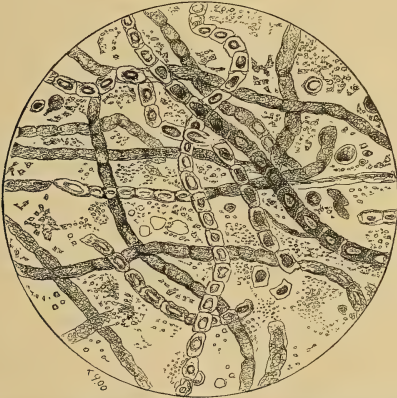
Pathology.—The disease is essentially a follicular and perifollicular inflammation, induced by the irritative effects of the fungus, pre-

¹ Loc. cit.

² Lancet, 1881, pp. 164 and 241.

cisely as in the case of *tinea tonsurans*. The reason for the difference between the clinical aspects of the two diseases, may be in part explained by the habitual covering of the scalp with caps and hats, while the face is left exposed; and by the occurrence of *tinea sycosis* in adult years, while *tinea tonsurans* is emphatically a disease of childhood. As a result of the induced inflammation, the vesicles, pustules, papules, and tubercles are formed, while the perifollicular inflammation may invade all portions of the skin and subcutaneous tissues, gluing together the plastic nodules formed about the individual hair-sacs, into the lumpy masses which are so characteristic of the disease. The invasion of the hair-follicles and hairs by the fungus, is accomplished as in the case of ringworm of the scalp. Under the microscope, spores and mycelia are visible, the former preponderating at the stage where the disease first comes under observation, but probably preceded in most cases by abundance of thread-like forms.

FIG. 82.



Filaments and spores of the trichophyton from the beard of a patient affected with *tinea sycosis*.

The identity of the disease with ringworm of the body and scalp, does not, however, rest merely upon microscopical observation, but is demonstrable by established clinical facts. Not only may ringworm be seen to spread from the face to the beard, but *tinea tonsurans* and *tinea circinata* may transmit *tinea sycosis*, and the reverse. I lately treated a physician for ringworm of the bearded chin and cheek derived from the face of a little patient under his care. He subsequently gave *tinea circinata* to his wife, who suffered on the face and shoulder, and she, in turn, communicated *tinea tonsurans* to her daughter.

Diagnosis.—The distinction between the parasitic and non-parasitic forms of *sycosis*, is of chief importance in this connection; and,

necessarily, the microscope must be employed to settle the question definitely. The diseases, however, differ in their clinical features. The non-parasitic form always fails to exhibit the nodules, tubercles, and composite cutaneous and subcutaneous agglutinations of the disease produced by the fungus. The disease in the former is a more superficial process, and, in the author's experience, exhibits to the eye a more vivid redness as a result of the cutaneous hyperæmia. Owing to the same cause, the frequent pus-containing lesions are developed and elevated above the general level of the integument; they are less commonly sub-epidermic crypts filled with characteristic mucoid puriform contents. The region of the bearded upper lip, so often involved in cases of chronic nasal catarrh with coryza, is apt to be spared by the trichophyton. When the latter is present, the hairs are characteristically loosened, distorted, and otherwise changed. This is not seen in the non-parasitic form of the disease. Exception, however, in this particular is to be noted in some long-standing cases of non-parasitic sycosis. When the latter affection has persisted for many years (and one may often see such patients), the thinned and starved condition of the pilary growth is a striking symptom, the scanty lustreless hairs often scarcely sufficing to conceal the deforming redness and pustulation of the surface from which they spring. In another point, the author's personal experience seems to differ from that of some other observers. The diffuse symmetrical affection of the hairy face, extending over both cheeks and chin, has been by him more frequently recognized as unconnected with the presence of a parasite. Lastly, the parasitic is, as a rule, less painful and tender than the other form of sycosis; and is, without question, furthermore of much rarer occurrence.

As distinguishing from syphilis, it is to be remarked that the papular or pustular syphiloderm developed in the beard is, almost without exception, to be discovered in other parts of the body, especially the scalp. Ringworm of the scalp and beard, existing at the same time in one individual, the author has never seen. In syphilis, there is usually an offensive odor to the abundant crusts; shallow ulcers are also apt to form beneath the pustules; and there is often a history of infection or a hint of the nature of the disease in its polymorphic character.

Eczema of the bearded region may extend to or from other portions of the face, as in the case where it sweeps down from the ear above. The presence of a stalactitic crust, depending from the lobe of the ear of an affected side, would at once furnish a clew to the nature of the disease in the beard. In eczema, the interfollicular region is invaded; not deeply, as in tinea, but superficially, as in non-parasitic sycosis. The itching is severe; the hairs not involved; the infiltration diffuse; the outline indeterminate; and a halo of redness spreads from the affected part to the non-hairy surface in the vicinity.

Treatment.—The treatment of tinea sycosis is generally conducted as in tinea tonsurans. It is customary to begin by anointing the affected surface with an oily or fatty substance, and to follow this

with a shampoo of soap and warm water for the removal of crusts, after which shaving and epilation are practised on alternate days; and parasiticides employed locally. For the softening of the crusts, the spray of the atomizer may be used.

Epilation of the male beard is often essential for the removal of the disease, but the author believes that the results of the treatment suggested below, are in the end often as satisfactory. It is true, that a month or more may be required for the removal of the disease, but that is often the period of time during which treatment by epilation must be pursued.

The patient for two successive days keeps the affected part macerated with almond or olive oil. On the evening of the third day, the shampoo with soap is employed, and the skin washed free from all crusts and scales. The part is then cleanly shaved. The first is more painful than any subsequent similar operation. After the shaving, the affected surface is bathed for ten minutes in water as hot as can be tolerated, by which means the inflammatory condition of the perifollicular tissues is, in a brief time, considerably reduced. While the bathing is in progress, all sub-epidermic pustules or points where a mucoid fluid is coming to the surface, are opened with a fine needle. A solution of the hyposulphite of sodium is then sponged freely over the surface for several minutes. This may contain a drachm (4.) to the ounce (32.) or even more. After a thorough and final washing with the hot water, the tender skin is carefully dried and gently smeared with a sulphur ointment, containing one or two drachms (4.-8.) to the ounce (32.) of vaseline. The patient then retires to bed. In the morning, the unguent is washed off with soap and water, the sodium solution reapplied, and a salicylated powder thoroughly dusted, and kept over the part during the day. In the evening, the shaving may be repeated or not, according to the vigor with which the beard is reproduced, but on the second day this is imperative. As soon as the pustulation ceases and the tubercles have manifestly diminished in size, the ointment at night is superseded by the use, at that time also, of the dusting powder. Whether the shaving is practised nightly or on alternate nights, the ablution with very hot water and with the solution of the hyposulphite of sodium, is continued nightly until the inflammation excited by the fungus is practically limited to the follicles which are invaded. The dusting powder is to be thoroughly and constantly employed after the ointment is discontinued. With care and patience, the author has succeeded by these measures in saving a number of patients from the annoyance of epilation. The treatment should be continued for several weeks after the apparent relief of the disease.

The treatment may be varied to suit the needs of individual cases, Kaposi highly recommends, for example, one per cent. solutions of corrosive sublimate locally; and the other parasiticides considered heretofore in connection with the treatment of ringworm, may serve here also a good purpose. The author has used an ointment of thymol in two cases with manifest advantage, and should not hesitate in others

to employ Mr. Morris's solution of the same in chloroform and oil. The formula for this has been already given. In other cases, the stimulating spirit of green soap with sulphur; finely powdered sulphur, boric, acetic, and carbolic acids, or other topical applications of recognized value may be employed.

When resort is had to epilation, and this is essential in all severe cases, the hairs should be thoroughly removed from their follicles over every lumpy nodule, and even over every suspicious patch covered with scales. A zone should be cleared about each such papule. The results are prompt, and in the highest degree satisfactory.

Prognosis.—This disease is always remedied sooner or later, though at times tedious in its progress, and characterized by relapse.

PRECAUTIONS TO BE OBSERVED IN THE GENERAL MANAGEMENT OF TINEA FAVOSA AND TINEA TRICHOPHYTINA.—The physician, consulted in the case of a patient affected with either of the diseases thus far considered as resulting from the presence of a vegetable parasite, should bear in mind that they are the most highly contagious of their class. He may not only himself suffer from the disease which he is attempting to relieve in another, but also convey it to others himself, or be consulted by others of his patient's family, actually infected during the course of the treatment pursued.

Generally it may be said that the hands of the physician should be carefully washed after each manipulation of the part, and preferably by aid of a weak disinfecting solution. When practicable, infected individuals should occupy separate beds; and the bed-covering, clothing, towels, toilet apparatus, and dressing or other materials which have been in contact with a diseased surface, should be immersed in boiling water before they are again employed for any use in common. Thin recommends covering every diseased patch, after the treatment appropriate to itself, with an adhesive and impermeable dressing, for the sake, not of the patient, but of those with whom the latter may be brought into contact; and the suggestion seems to the author both wise and practicable. A gentleman infected with ringworm of the beard in a barber's shop which he has visited but once, will often, when directed by his physician to shave, resort to some other establishment, where he is well known, and where he has more confidence in the cleanliness of the operators. In this way he often thoughtlessly spreads the disease of which he is the victim. In his city, the author is in the habit of sending patients who cannot shave themselves, to a particular barber, who, being instructed in the manner of shaving so as not to communicate the disease, has thus far failed to spread the disease in any case.

Tinea Versicolor.

Tinea Versicolor is a cutaneous disease occurring chiefly upon the trunk, neck, and upper extremities of adults, characterized by irregularly reticulated macular lesions, yellowish or brownish in hue, over which the epidermis may exfoliate in delicate scales, owing to the presence of the *microsporon furfur*.

Symptoms.—This disorder is also termed *Pityriasis Versicolor*, *Dermatomycosis Furfuracea*, and *Mycosis Microsporina*. The eruption occurs in the form of few or many, irregular, roundish, circumscribed or reticulated maculæ, pin-head to small coin-sized, rarely occupying an area of the size of the palm or larger. In color, it varies from the most delicate buff or fawn shade to a reddish, deep brown, and even blackish hue. The surface of each lesion, when closely inspected, is usually seen to be covered by furfuraceous scales. If the latter are not visible, slight erosion with the finger-nail will demonstrate the fact that the superficial layers of the stratum corneum are, in the site of each lesion, readily separable from the tissues beneath. The eruption is most common upon the anterior surface of the thorax, but it is also displayed upon the neck, the dorsum, and the other surfaces of the trunk, and the flexor aspects of the upper extremities (the hands only excepted). It is rarely seen upon the lower extremities; still more rarely on the face; never on the hands and feet. The eruption is either unproductive of any sensation, or accompanied by a mild pruritus. Patients will usually declare, that after profuse sweating, bathing in warm water, or brisk friction of the surface, minute epidermal rolls separate from the affected area.

Exaggerated forms of the eruption are occasionally encountered. In a young married woman presented to the author, who had been the subject of the disease for many years, the entire trunk, the axillæ, groins, upper portion of the thighs, the neck to the level of the high collar worn, and the upper extremities to the wrists, were encased in a uniform sheet or cuirass of chocolate-tinted epidermis, in a condition of exfoliation in finger-nail sized lamellated flakes. Even in these extreme cases the tendency of the disease to avoid the surfaces exposed to the light is distinctly manifested. Unna¹ describes another anomalous feature of the disease, in which the maculations occur in annular form with a clearing centre. Rarely, also, a very few irregularly distributed maculæ may be seen as the sole evidences of the existence of the parasite. Thus a patient may exhibit a small coin-sized patch on the surface of the chest, another on the shoulder, and possibly a third over the deltoid region of one arm. These are generally cases partially relieved of a more diffuse eruption. More commonly, the slightest manifestation of the malady is an irregular, vertically arranged, somewhat narrow band of lesions immediately over the sternum, and visible beneath the hairs of that region in the

¹ Viertelj. f. Derm. u. Syph., 1880, Nos. 2 and 3.

adult male, or upon the intermammary sulcus of women. The face, hands, palms, soles, hairs, hair-follicles, and nails, are usually exempt from the disease.

Etiology.—The disease is produced by a vegetable mould discovered by Eichstedt in 1846, to which Robin gave the name, *microsporon furfur*. In capabilities for contagion, it is far inferior to the vegetable parasites already described, and illustrates well a point to which attention has been already directed, viz., that all these fungi flourish only in soils suitable to their germination and fructification. Members of one family are said to communicate the disease occasionally, the one to the other, and Lancereaux¹ reports that in this way he accidentally infected himself from scales collected for examination from a patient in hospital, and afterward unwittingly transmitted the affection to his wife. The author has never had personal knowledge of any instance of such transmission. The disease occurs in both sexes, rarely before puberty and after middle life, and in persons of every social condition, irrespective of personal cleanliness. It is exceedingly common, more so indeed, than statistics are capable of demonstrating, inasmuch as hundreds are annually annoyed by it who never seek professional advice. In the thousands of physical examinations made by the author with a view to the enlistment of men in the United States service during the late war, as also of many government pensioners since that date, he has been particularly impressed with this fact. Being concealed by the clothing and unproductive of much discomfort, many persons endure its presence with complacency.

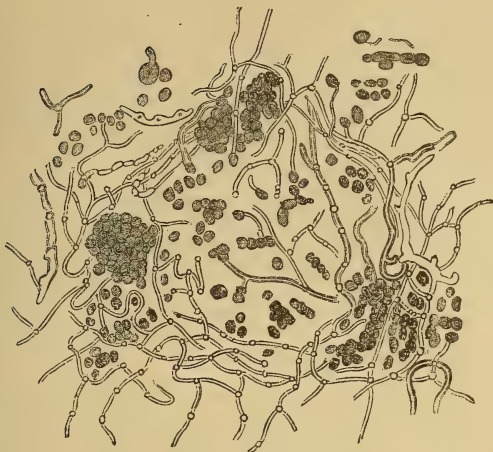
By some it has been supposed that the fungus is particularly apt to select the chest of the phthisical as its habitat, a supposition doubtless based upon the fact that tuberculous men and women, more than all others, expose the chest to the view of the medical man in order to permit of its auscultation and percussion.

Pathology.—The *microsporon furfur* is readily recognized by the aid of the microscope, as it exists in luxuriant profusion upon every affected surface. The scales may be scraped from the skin, and at once examined, when innumerable clustered spores and short mycelia become visible; the former highly refractive and resembling in their circular and oval contours, droplets of oil. Their aggregation in clusters is distinctive of this among the other forms of cryptogamic vegetation. They measure 0.0023 to 0.0084 mm., while the mycelia vary in diameter from 0.0015 to 0.0038 (Duhring). Among the latter, sporophores are distinguishable, with contained conidia and terminal elements emerging at one extremity or the other of the spore-case. Both elements are more readily stained by eosine and methyl-violet than those of the trichophyton or of favus.

One of the strongest arguments against the claim for the identity of all the vegetable parasites is furnished by the history of this interesting mould. It never by any possibility invades the hairs or the hair-follicles, though it may be seen flourishing at the orifice of a

¹ *Traité d'Anatomie Pathol.*, xi, p. 265, Paris, 1875.

FIG. 83.



Microsporon furfur. (After KAPOSI.)

follicular duct, and even beneath a vigorous pilary growth upon the chest of a male subject. It avoids the light and the air; and singularly refuses to encroach upon certain covered portions of the body, even preferring, in its extremest development, to linger unobtrusively at the neck near the verge of the collar.

Diagnosis.—Here, as in all the parasitic diseases of vegetable origin, the microscope may be required to decide the diagnosis in any case where a doubt might arise. In its simpler manifestations, the recognition of the affection is very readily assured. The location of the eruption, its irregular reticulations, its characteristic, yellowish or fawn-tinted shades of color due to the nature of the fungus; and the exfoliation of the epidermis which it excites by its superficial penetration of the outer layer of the stratum corneum, producing thus a mealy, branny, flaky, or roll-like exuvium; all this is significant. None of the chloasmata due to pigment changes in the skin, however much they may resemble tinea versicolor in color, share with it this peculiarity of desquamation. Chloasma may involve, moreover, the face; tinea versicolor almost never. Vitiligo may occur upon the scalp; tinea versicolor very rarely. The macular syphiloderm may be mistaken for the disease under consideration, but when developed to such an extent as to rival tinea versicolor in its diffuseness, the syphiloderm will creep out over the face, the hands, and the feet; and will be accompanied by adenopathy, alopecia, mucous patches, palatine hyperæmia, or furnish evidence of a polymorphic tendency. Often, indeed, with such an eruption, the survival of the initial

sclerosis will at once betray the nature of the disease. These are important considerations, since in the mere matter of subjective sensation, color, shape, and size of lesion, there may be marked resemblance between the two. The author has treated several patients with tinea versicolor who were suffering from syphilis; and many having the former disease who, from the fact of exposure, believed they also were infected by the latter, and yet indeed were not. These incidents serve to illustrate the importance of making an accurate diagnosis in every case of cutaneous disease.

The most vulgar error, however, committed in this connection, is based upon the fancied resemblance in color between the patches of tinea versicolor, and either the liver itself, or the color changes which disease of that viscus is capable of producing in the skin. The existence of "liver-colored" spots on the skin is hence erroneously attributed to hepatic disease. A remarkably comely, healthy-looking woman, of high social standing, who had been vainly treated for two years by internal remedies addressed to the liver, once consulted the author, with a view to the removal of large patches of tinea versicolor from the surface of the chest. She was completely relieved of her disfigurement in a single week by the employment of local measures alone. Few patients consult their physician for the relief of this disorder who have not a prejudice of similar sort.

Treatment.—The author has always employed a single method of relieving tinea versicolor, for the simple reason that that one has been invariably successful. It is practically that given by Tilbury Fox, and requires merely vigorous and intelligent coöperation on the part of the patient. A hot bath is taken, if possible, for three nights in succession, and when the surface is well macerated by the hot water, the affected skin is resolutely scrubbed, either with the cheap yellow soap of the grocer, or *sapo viridis* in substance or tincture. When the disease is extensively developed, this process is aided by friction with the flesh-brush or a coarse towel. The skin is then washed clean with a surplus of hot water, the patient still remaining in the bath, after which the affected patch is first moistened with vinegar and water, or dilute acetic acid, and afterward well sponged with a solution of the sodium hyposulphite, one drachm (4.) to the ounce (32.) being usually sufficient. As a rule, the last vestiges of the eruption are removed with the third bathing. Should there be recrudescence in isolated patches, as is often the case, or outlying areas which have withstood the parasiticide employed, these should be subsequently attacked with a solution of the corrosive chloride of mercury, one to two grains (0.066–0.133) to the ounce (32.). Other measures, however, are popular with physicians, and among them may be named the topical use of boric, carbolic, and sulphurous acids; the tincture of iodine; sulphur in bath, ointment, or lotion; calomel in ointment; the alkalies in baths or lotions; sulphide of potassium in bath; chrysarobin, pyrogallol, tar, Wilkinson's salve, and the other parasiticides employed in the treatment of ringworm of

the body. The inner clothing should not be worn after treatment till it has been immersed in boiling water.

The following formula also is recommended :

R. Hydrarg. chlor. corros.	ʒj;	133	
Saponis viridis	ʒij;	64	
Spts. vin. rectific.	ʒiv;	128	
Ol. lavandul.	ʒj;	4	M.
			(Anderson.)

Prognosis.—The disease can be readily relieved by simple treatment. Relapses often occur, and require to be radically treated. Untreated, the disease may continue for years without the slightest impairment of the general health. It is probable that when untreated, the parasite undergoes spontaneous exfoliation in advanced years, a period when presumably the fungus fails to find in the epidermis the nutriment upon which it thrives.

Myringomycosis.

The spores of the aspergillus, being conveyed to the external ear, occasionally develop there, especially if they come in contact with fatty substances introduced for medicinal purposes. Usually whitish masses can be recognized in the canal, covered with greenish, brownish, or blackish spots. There is usually some deafness, with a sensation of ringing in the ears, and at times a thin serous discharge from the external auditory meatus. Löwenberg¹ recommends the injection of dilute alcohol into the canal for the destruction of the mould.

Erythrasma.

Gr. *έρυθρός*, red.

Erythrasma is a cutaneous disorder, affecting chiefly those regions of the body where exposed surfaces of the skin are in contact, characterized by erythematous, rosette-shaped maculations, and due to the presence of the *microsporon minutissimum*.

Buckhardt first described this disorder in 1859, but it received its name from v. Bärensprung in 1862. It has since been carefully studied and described by Balzer and Riehl.

Symptoms.—The disease first appears in punctiform to palm-sized, roundish, definitely circumscribed maculations, presenting a sharp contrast in color with that of the adjacent integument. This hue varies somewhat according to the location of the patches. The younger lesions may exhibit a vivid redness over the entire maculæ, or over their borders only. The older exhibit a yellowish or brownish tinge. These colors are supposed to be compounds of ordinary erythematous redness and yellowish or brownish discoloration of the horny layer of the epidermis.

The maculæ are circular, or rosette-shaped, or display very irreg-

¹ Gaz. Heb. d. Méd. de Paris, 1880, 2me sér. xvii. p. 579.

ular outlines. They are not raised above the general level of the skin to any extent, though the finger pressed over the surface can recognize a slight elevation of the border due to hyperæmia and subsequent moderate, fine-flour-like, furfuraceous desquamation, most conspicuous also at the periphery. Vesiculation and papulation do not occur. The colors recognized in different patches may be light reddish-brown, pale reddish-yellow, and light or dark orange.

The eruption is most commonly encountered when apposed surfaces of the skin come in contact, such as occurs in the axillæ, the groins, the cleft of the anus, and the regions where the scrotum touches the thigh. The eruption spreads very slowly and in serpiginous outline, until the affected surfaces are completely invaded. It is said to be much more chronic in its course than the other dermato-mycoses, lasting for months and years without apparent change.

Etiology.—Erythrasma is produced by the growth in the superficial layers of the epidermis, of the fungus described below. Men are much more often affected than women; children not at all. The youngest patient whose case is recorded was sixteen years old; the oldest, fifty-five.

Pathology.—The fungus termed *microsporon minutissimum* to which the disease is attributed, is chiefly remarkable for the extra-

FIG. 84.



Microsporon minutissimum, from patches of erythrasma.

ordinary delicacy and fineness of its threads and spores. The former are either simple cylindrical bodies of variable sizes or may exhibit partition septa; they may divide dichotomously; and may terminate in hooked or knobbed expansions. They are inextricably interwoven when occurring in large masses. The largest transverse diameter is

0.6 of a micromillimetre; in length, the mycelia present the greatest variation. Bacteria and heaps of zoöglœa are visible among the scales. The granules are piled into irregular heaps according to Burekhardt, and give a dusty appearance to the epidermal cells on which they lie; often the outline of these granules is indistinct. According to the same observer, the breadth of the mycelia is $\frac{1}{1200}$ mm.; and the length from $\frac{1}{15}$ to $\frac{1}{200}$ mm.

Diagnosis.—From all ordinary chloasmata and pigment maculæ, the spots of erythrasma are distinguishable by the ease with which the superficially embrowned epidermal layers are removed by erosion. Tinea versicolor is distinguished from erythrasma with greater difficulty; but the latter occurs in different situations by preference; its patches are more vividly red; and the parasite, under the microscope, presents distinctive features.

The *Treatment* is that of tinea versicolor; and the prognosis favorable, subject to the disappointments arising from frequent relapses.

LA PERLECHE.—Under this title, Dr. Justin Lemaistre, of Limoges,¹ describes a contagious disease observed by himself in more than three hundred children of his city. It is characterized by dryness, smarting, cracking, and excoriation of the lips, the epithelium of which becomes blanched, macerated, and readily detached. Hæmorrhagic and painful fissures form in the direction of the commissural folds. Often plaques are visible suggesting mucous patches. The disease lasts for from fifteen days to a month, with possible recurrences which may lead to a year's suffering.

The disease is supposed to be of parasitic origin, communicated by drinking from cups used by infected persons. The author attributes the disease to a streptococcus plicatilis which he has cultivated in Pasteur flasks. The microbes were originally found on the borders of epithelial cells of the lips of infected children. The parasite lives in stagnant water, wells, and springs in the form of a micrococcus. The disease is one of uncleanness; and readily prevented by appropriate hygiene.

2. Animal.

Scabies.

Lat. *scabere*, to scratch.

Scabies is a contagious cutaneous affection, characterized chiefly by the formation of the cuniculus, or furrow, produced by the acarus scabiei which is the cause of the disease, as also by the occurrence of several of the elementary lesions of the skin, accompanied by itching.

Symptoms.—Scabies, or "The Itch," is a disease of polymorphic character, which may be viewed as an artificial eczema or dermatitis,

¹ Le Progrès Médical, October, 1884.

produced by the invasion of the itch mite. According to the extent to which the skin is primarily invaded by the parasite, or secondarily injured by the traumatism which follows severe scratching of its surface, will its objective symptoms differ.

Prominent among the latter is the cuniculus, or acarian furrow, an elongated gallery excavated in the epidermis by the female acarus soon after her impregnation by the male. The latter does not enter the skin, but is lodged beneath the crusts or other exuviae which gather upon its surface. This cuniculus or furrow, is a whitish or yellowish, slightly arciform, linear lesion, covered with dots or specks of blackish aspect, representing feces of the mite, with regular parallel borders. It terminates at the upper extremity, by a vesicle, pustule, or exfoliation of the surface at the site of an infundibuliform depression; and at the deeper extremity, by a whitish and yellowish, shining and salient point, representing always the acarus. This is the most characteristic symptom of scabies.

The "head" of the gallery is usually whitish, where the parasite first entered the skin; and is also more elevated than the "tail," where the acarus rests after laying its dozen or more of eggs. At times, the entire cuniculus forms an elevated ridge, rather than a thread-like depression, with white dots along its summit. When the roof of the vesicle at "the head" is torn off by scratching, the effect is to produce a reddened spot at its site, surrounded by a whitish moat running around the spot to the entrance of the gallery.

When the burrow exists, it can be most perfectly recognized in the interdigital spaces and on the skin of the penis, as a tangential line, running from a vesicle, papule, or pustule, to a distance of from one-eighth of an inch to an inch. It resembles a beaded, dotted, yellowish or blackish thread, the color being more pronounced in comparison with a fresh colored and washed skin, and less marked in contrast with a soiled surface; being, in a soiled and subsequently washed integument, most conspicuous in proportion as the small puncta have served to entrap particles of dirt. The cuniculus may be curved, angular, or tortuous; and occasionally may be seen well nigh completely covered by a bulla, pustule, or vesicle extending its entire length. In such cases, however, the female always penetrates beyond the peripheral wall of such lesion, working her gallery beyond it and more deeply, lest she be lifted by the exudation out of reach of the succulent rete where she feeds.

Hebra points to the fact that between two parallels, one drawn through the nipples, and another at a short distance above the knees, on the anterior face of the body, can be recognized the greater part of the eruptive lesions in every case of scabies.

The disease is indeed one peculiar to those classes which are the familiars of filth and poverty, occurring among these at all ages and in both sexes. As a matter of accident, it may appear, however rarely, in individuals of high social station. It is much more common in Scotland, Austria, Prussia, Sweden, Norway, France, and the Orient, than in this country. During the late civil war, it prevailed

with relative frequency among the masses of Americans associated in regiments with foreigners who had been but a short time in the country ; and since then, seems to have steadily decreased. But few cases are seen annually in the public clinics of large cities, though here and there, chiefly among newly arrived immigrants, isolated "nests" of the disease are discovered.

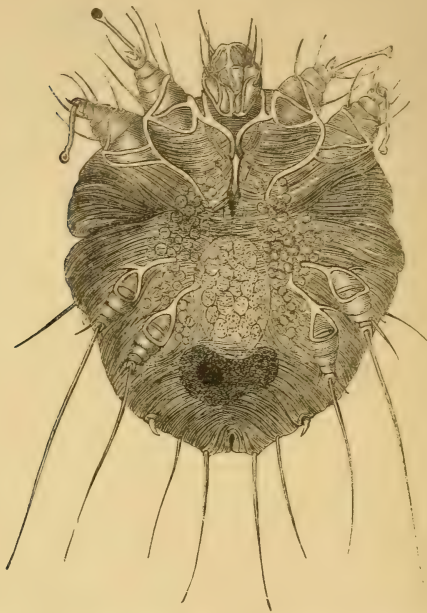
In consequence of the irritation produced by the parasite and the traumatism of scratching this furrow, all the symptoms of acute and chronic eczema are presented in the region invaded. These are vesicles, pustules, wheals, small papules, hyperæmia of the skin upon which these rest, crusts formed by dried serum, pus and blood, excoriations, fissures, and, in cases of long standing, pigmentation of the skin where the disease has existed. These lesions may coexist, several appearing at the same time upon the skin of an affected individual ; small vesicles and pustules, with perhaps a few short cuniculi visible upon their summits ; excoriations ; larger and longer cuniculi interspersed between inflammatory papules ; a tumid skin, evidently the seat of a mild grade of dermatitis ; and crusts here and there, beneath which male and young acari are ensconced. Such is the composite picture of a typical eruption in scabies.

It will be remembered that the acarus family find nutriment, shelter, and all they require on the person of the individual whose skin they inhabit ; and there is no inducement for them to colonize at the instant of the first opportunity offered. The transfer of a male acarus alone, from one person to another, would not insure a generation of the young ; and the unimpregnated female could not alone do more. As for the impregnated female, Hebra, on several occasions, failed to induce scabies when one such only was transferred intentionally to a sound skin and seen to penetrate it. Lastly, the eggs alone would not suffice, for these have to be nicely planted within the epidermis, in order to be hatched safely to maturity. In brief, only the more intimate contacts of the bed at night, and the application of nails charged with acari of both sexes, especially the young, are to be regarded as most effective for the transmission of the disease. That is one reason while nearly seven men are found to be affected with scabies to one woman. Women are, as a rule, more inclined to sleep alone, or with those only to whom they have family ties ; while laborers, boys, apprentices, and persons of that class, including those who are strangers to each other, at times occupy the same beds, especially in the large cities, where they are often huddled together at night like swine.

The intruder may be recognized always at the terminal extremity of her gallery, for it is now known that she does not in her lifetime leave it for any purpose, as was at one time taught. The female acarus here shows as a minute, whitish, clearly defined dot, presenting a contrast in this particular with the blackish feces in the gallery behind ; and may be, in a good light, by a person of some dexterity and fair eyesight, extracted on the point of a cambric needle, from her lodging-point. It is important to know that this parasite may

be recognized by the unaided human eye. Its characteristic tortoise-like body exhibits most of its anatomical peculiarities under a glass enlarging the figure but one hundred diameters.

FIG. 85.



Female acarus, fecundated; ventral surface. An ovum arrived at maturity is visible within the body. (After KAPOSI.)

The regions affected by the eruption are the palms (especially of women and children) and dorsal surfaces of the hands; the flexor aspects of the wrist-joints; the sides and roots of the fingers and toes; the feet (and, especially in women, the delicate skin of the feet near the instep, partly dorsal, partly plantar in situation); the buttocks (more particularly in those who are seated in the trades and occupations of life); the extensor faces of the joints; the belly, the penis and scrotum in men; the anterior folds of the axillæ; the nipple and breast of women; the elbows and knees, rather than the popliteal space and bend of the elbow; and the anal region. Scabies, prurigo, and pruritus are alike in this, that in each the face and posterior aspect of the body display the fewest of any lesions visible. In general, portions of the body subjected to constant pressure by

the clothing, as, for example, the regions pressed by the corset of the woman, and the waistband of the trousers in man, are sites of predi-

FIG. 86.



Acarian furrow, from the lumbar region. The female acarus is visible at the terminal extremity of the furrow with ventral surface exposed, and containing a mature ovum; two ova, next her, have been laid during the day, as the third exhibits traces of the embryo; the twelfth exhibits a mature larva; twelve empty shells are also seen; between these the feces are represented by blackish points. (After KAPOSI.)

lection. In other cases, the disease is encountered in the axillæ, groins, and, as a matter of rare exception, over the entire surface of the body.

The itching of scabies is occasionally severe, and has in fact conferred upon the disease its familiar English title, "the itch." This sensation is usually worse at night, when the parasite is rendered active by the heat of the body in bed, retained by the bed-clothing. It differs somewhat in different cases, being at times the cause of but little complaint. There is nothing characteristic, however, in the occurrence of this symptom, as equally severe pruritus accompanies eczema unconnected with parasites.

The itching which results from the epidermic tunnelling in progress is often noticeably more severe than would be suggested by the moderate number of skin lesions visible. When these lesions (puncta, vesicles, pustules, blebs, papules, resulting crusts, furrows, excoriations, etc.) are found upon the hands the itching becomes so great that the infested person scratches also the accessible parts of the skin, where there were originally no acari, such as the inside of the thighs, the lower belly, etc., as Hebra suggests, simply because they are "handy." Hence it is that the picture comes to resemble that of all pruritic and scratched skins.

Several artificial forms of this polymorphic affection are occasionally noted. In children, the face may become diseased after contact with the breast of the mother, or the buttocks after contact with the flexor aspect of the nurse's arm. Large vesicles, and even rupioid bullæ, may result from the irritation of their tender skins. Again in subjects predisposed to eczema for any reasons, the invasion of the parasite in one region of the body, possibly a region of preference, may originate an eczema in another locality whither the parasite has not wandered. In other cases, the most exaggerated forms of eruption are seen, usually in persons of filthy habits who have long suffered from the malady. Thus extensive epidermal callosities form, filled with débris of dead parasites unable to find nutriment longer in the cornified rete; or extensive greenish and blackish crusts cover colonies of acari which survive beneath them for generations of their race. The nails in such extreme cases may be involved. The so-called SCABIES NORVEGICA, or Norwegian itch, belongs without doubt to this class. As a rule, however, the disease does not advance to these severe grades. The parasites having gained lodgement in the skin, produce characteristic symptoms of the disease in the average of cases, but even though unrecognized, and persisting for weeks, are the sources of so much annoyance that treatment of some sort is instituted which is apt to restrict the extension of the malady, certainly in this country, within moderate limits. Usually after lodgement is effected, a week or fortnight elapses before the first characteristic furrow is formed, though the pruritus is of earlier occurrence. The extension of the disease by the maturing and ravages of young acari requires a few weeks more, so that in the course of from two to three months, the evolution of the malady may be considered as complete. In the course of about three months more, the disease, unchecked may become generalized.

Even the animal parasites elect the soil upon which they thrive,

and indeed, after such election, thrive well or ill, according to the conditions present. This is not only exemplified in the matter of individual susceptibility, but in the conditions of health of an affected person. Thus in puerperal and typhoid fevers and other grave states of systemic disturbance, the parasites perish in the skin and the resulting eruption disappears; classical symptoms recurring in convalescence if one or more acari have survived with sufficient vigor to reproduce their kind.

Etiology.—The disease is produced only by the *acarus scabiei* (or *sarcoptes scabiei*) and is thus contagious, the parasite being introduced upon the surface of one individual, mediately or immediately from the skin of another infested man or an animal. All persons are supposed to be susceptible to the disease, but the difficulty of intentionally transmitting it by contagion is greater than that of inducing the leech to fasten itself indiscriminately upon any given skin. The brief shaking of the hand or transient personal contacts of the daytime, are certainly in many cases quite insufficient for contagion. The author has repeatedly handled the skin of a patient affected with scabies for half an hour at a time, always with impunity; and never happened to know of a practitioner of medicine who suffered after the most careful examination of a patient. When a case is exhibited at the clinic, it is minutely, and without ill results, examined by dozens of students. It is probable that the contacts of the night, incidental to the occupation of the same bed, or the use of gloves and other articles of apparel containing parasites or their ova, is essential to the transmission of the disease.

Pathology.—The pathology of the eruption induced by the parasite is that of the various phases of exudation. The differences betrayed between scabies and all other eruptions of similar type, depend, in the case of the former, upon the peculiarities of the exciting cause of the disease. In the description of this, the *acarus scabiei*, I shall avail myself of the admirable chapter devoted to the subject by Kaposi.

The female *acarus*, visible as a yellowish-white dot at the cul-de-sac of her subcutaneous gallery, and removed hence on the point of a fine needle, is visible to the naked eye, but best examined under the microscope. The body is oval, with a short projecting head and a convex dorsum transversely corrugated, with short spinous processes projecting for the most part backward, a direction largely followed also by the eight long bristles which are most notable at the posterior extremity of the trunk. The posterior portion of the dorsum also exhibits a series of recurved, short, hook-like projections, arranged circle-wise, about the ano-vaginal orifice.

The flat ventral surface exhibits eight short claws or legs, four anterior and four posterior. The former are set near the head, and are provided each with hairs, and a long, pedunculated sucker. The latter are armed solely with long, straight bristles. All the eight have five articulations. The head is oval in shape, and provided with four pairs of mandibles and six palpi. There are two

ventral outlets; and a stomach, intestines, ovaries, muscles, and even mature ova can be recognized internally.

The males are smaller than the females and fewer in number. They differ also in this, that the posterior extremities are provided with suckers and stalks, as are the anterior extremities of the female. Situated between these and the median line, is a horse-shoe shaped mass of chitine ensheathing a fork-shaped penis.

They are said to die in the course of from six to eight days after copulation with the female. The latter survive from twenty to sixty days.

The female alone, as already said, penetrates the epidermis. This act she accomplishes by inserting the head first into the tissues of the skin, the body disappearing afterward, and depositing behind, in the course of her progression downward, from one to two eggs daily till from twenty to fifty have been laid. These are oval, their longitudinal axes placed transversely to the cuniculus. In the two or three eggs found nearest the female, only a yellowish color can be distinguished; in the third to the fifth, traces of the embryo are recognizable; the sixth to the ninth contain larvæ; and, in the oldest, the head and front legs can be discerned. There are six of these extremities when all are developed. When mature, the shell of the ovum is ruptured, usually between the third and sixth day, and the young acarus reaches the surface of the skin, either by making exit at the original point of entry of the mother, or by the rupture of the roof of the burrow. It subsequently buries itself in the skin for a brief time, while the process of casting its slough is completed. There are said to be three of these periods in its existence. Before the first is accomplished, the young acarus is provided with but two pairs of posterior extremities, two anal bristles, and ten dorsal spines. After the first, it is an octopod with four oval bristles and twelve dorsal spines. At the second, it gains two dorsal spines, and after the third, it possesses fourteen. The acarus survives but a few days when removed from the skin and immersed in liquids which protect it from the air, such as water, oil, etc.

The transmission to man of the acarus peculiar to the horse, cat, sheep, rabbit, elephant, etc., may be accomplished; but the colony under these circumstances rarely thrives. The same is true of the human acarus when transferred to the lower animals.

Diagnosis.—The diagnosis of scabies must rest upon the recognition of its special features described above. There are no lesions peculiar to the disease save the cuniculi or furrows made by the parasite, and these, it will be remembered, do not appear till one or two weeks have elapsed after infestation. They may also be obliterated or concealed by excoriations when the finger-nails plough them open, or by pustulation and subsequent crusting when the irritation induced is excessive. In every well-marked case, however, cuniculi can be discovered, if not on the fingers, wrists, or forearms, at least on the penis, the breast near the nipple, or some other covered portion of the body. With care and little dexterity, a fine cambric needle can

be then forced into the furrow well down to and a little beyond its remote cul-de-sac, and the *fons et origo malorum* be thence extracted and placed under the objective of the microscope.

Next to the cuniculus, and its inmate or inmates, the two most important diagnostic features of scabies are, the polymorphism of the eruption and the sites of its most frequent occurrence. Possibly the latter should be named first, as the more important of the two. Few skilled diagnosticians would fail to entertain a suspicion of scabies in a case of supposititious "eczema," existing upon the fingers, wrists, and penis only, or on the breast of a mother, the face and buttocks of her infant, and the arms of its nurse.

At the same time, it is a matter of great importance to remember that eczema is often attended with very severe itching; that this sensation may be intensely aggravated after retiring to bed at night; is often limited to the hands; is not rarely characterized by interdigital vesicles and pustules; and is, indeed, in this country very much the more frequently encountered of the two diseases. The vulgar conception of scabies holds to the belief that the disease is exceedingly common; that every severe itching with a cutaneous exanthem is produced by "insects" or "worms" in the skin, and that transient casual contacts are abundantly capable of transmitting the offending parasite. Many more cases of simple eczema are supposed to be scabies than the reverse. There are few villages in the country which cannot lay claim to an "itch," often known by a name of local significance. Among these may be counted the so-called "prairie itch" of the West. These are, as a rule, forms of eczema quite unconnected with the existence of a parasite, and incurable generally by the parasitocides too often employed to "kill" the disease. In all such instances, the absence of the characteristic features of scabies described above, the absence of a history of contagion, and the presence of that of an alternating relief and aggravation of the symptoms, will point to the real character of the malady.

In the severe pruritic affections of the West and Northwest, which the reader will find described in the chapter devoted to the several forms of pruritus, it is noticeable that the patients are often cleanly, those who are careful as to the hygiene of the body. Scabies is really a filth disease, and is best recognized among the filthy classes. Of diagnostic importance is the relative proportion in frequency of cases of scabies to all other cutaneous affections, pruritus included, observed in this country.

From the year 1878 to 1882, the statistical committee of the American Dermatological Association reported 58,617 cases of skin diseases of all kinds, and the total number of cases of scabies included in the list was but 665, that is 1.10 per cent. The year 1883 to 1884 was an exceptional one as regards scabies. Out of 9329 cases of cutaneous disease reported from Boston, New York, St. Louis, Chicago, and Canada, there were 339 cases of scabies. This relatively great increase was largely due to local causes, however; for of these cases Boston reported 179, and accompanied these figures with

a note calling attention to the increase. It is interesting to specify that of the cases collated in the year named, only 33 were seen in private practice, the remainder, 306, being observed in dispensary or public patients.

During the succeeding year ending June 30, 1885, there were 442 cases of scabies reported from the several districts, of which 49 occurred in private, and 393 in public practice. This year, also, Boston exhibited the largest increase, reporting three more than one-half the entire number of cases of scabies registered in this country, viz., 224.

Treatment.—The treatment of scabies has in view the destruction of the parasite and the relief of the cutaneous disorder which the former has induced. Ordinarily the two indications are fulfilled at the same time. In such cases, the destruction of the parasite is followed by relief of the resulting cutaneous lesions; and the skin, freed from the burrowing acari, is no longer tormented by the scratching which in extreme cases is not only irresistible but an important element in the aggravation of the lesions. In other cases, however, the resulting eczema or dermatitis persists after the removal of the original cause of the disease, and demands special attention. Care should always be had to avoid treating the delicate skin of the infant with the severer remedies efficacious upon the thicker integument of the adult.

Sulphur, in all its forms and in various combinations, has long held the highest esteem in the treatment of the disease. Other remedies, however, of acknowledged efficacy are employed with satisfactory results, most of them owing their usefulness to the strong odor which they emit. Among these may be named carbolic acid; petroleum; naphthol; the oils of cloves, cinnamon, rosemary, and mint; tar; balsam of Peru and balsam of Tolu; styrax; staphysagria; Vlemineckx's solution, heretofore described; and sapo viridis.

Sulphur is commonly employed in the form of an ointment, one to two drachms (4–8.) to the ounce (32.), firmly, thoroughly, and carefully rubbed, first into the affected patches, especially between the individual fingers (or toes), about the wrists, over the palm and dorsum of the hand, into the axillæ, about the nipples, penis, buttocks, or other invaded parts; and finally over the cutaneous surface in general, the head alone excepted. If no severe eczematous complications exist, the inunction is well preceded by a warm soap, or soft soap and water bath. But in the event of such complication, the bath should be deferred as decidedly injurious in the inflamed condition of the skin.

This first inunction is preferably performed at night, after which the patient retires to his bed enveloped in woollen underclothing, or wrapped in a blanket. It is neither wise nor necessary to induce sudation by these measures, for the skin is best retained in simply a greasy condition, unmacerated by sweat. In England, it is customary to bathe on the ensuing morning, but it is preferable to defer the latter till the cure is complete, however disagreeable the condition of

the integument may be to the sufferer. The sulphur inunctions are thus repeated for three successive nights, a thorough warm soap and water bath being finally employed for the purpose of cleanliness. The clothing meantime should be either thoroughly disinfected with sulphur, immersed in boiling water, or subjected in a stove or furnace to a dry heat capable of destroying all acari and ova which might adhere to it.

In France, the routine treatment of scabies is always preceded by a thorough friction for twenty minutes with soft soap, special attention being as usual directed to the invaded areas. This is at once followed by a bath in warm water, during which the surface is also thoroughly scrubbed for from thirty minutes to an hour. Lastly, the parasiticide is well rubbed on for fifteen minutes, the patient redressed in the underclothing (disinfected during the progress of the bathing) and the final cleansing of the skin with water is practised within twenty-four hours.

When a resulting eczema demands attention, it is to be treated in accordance with the general principles considered in the chapter devoted to that subject. In such case the dusting-powders, the oleated lime-water, the zinc, diachylon, and even more stimulating ointments, may be employed with advantage. Generally, after a vigorous course of external treatment with sulphur, the patient should be instructed to defer any further topical applications to the skin for a week or more, in order to test the efficaciousness of the method pursued.

One of the following formulæ may be substituted for the ordinary sulphur ointment:

R. Sulphur. flor.	3xij;	48	M.
Potass. subcarb.	3vj;	24	
Adipis	3ix;	288	
Hardy's modification of Helmerich's ointment.			

R. Styracis liq.	f3j ;	4	M. (Kaposi.)	
Petrolei }	[āā f3ss ;	16		
Ol. olivæ }				
Balsam. Peruv.	f3ijss ;	10		
Spts. sapon. virid.	f3v ;	20		

R. Potass. sulphuret.	3v ;	20	M. (Jadelot.)
Sapon. alb.	3xx ;	80	
Ol. oliv.	f3iv ;	16	
Ol. thym.	gtt. xv ;	1	

R. Sulphur. sublim. }	āā 3ss ;	2	M.
Balsam. Peruv. }			
Adipis	3j ;	32	
For use especially in the scabies of children.			(Duhring.)

Hebra's modification of Wilkinson's salve, Vleminecx's solution, and the balsam of Tolu are employed for the same purpose.

Kaposi's naphthol formula is :

R. Naphthol	15 parts ;	
Sapon. virid.	50 parts ;	
Cret. alb. pulv.	10 parts ;	
Axung.	100 parts ;	M.

McCall Anderson much prefers, on account of its pleasant aroma :

R. Styracis liquid.	$\frac{5}{3}j$;	$\frac{32}{64}$	
Adipis	$\frac{5}{3}ij$;		M.
Melt and strain.			

or Schultze's modification of Pastav's formula :

R. Styracis liquid.	$f\frac{5}{3}j$;	$\frac{32}{8}$	
Spts. rectificat.	$f\frac{5}{3}ij$;		
Ol. olivæ	$f\frac{5}{3}j$;	$\frac{4}{4}$	M.
Ft. liniment.			

Prognosis.—Scabies is an entirely curable disease, even after persistence for long periods of time. When, however, complications exist, or severe eczema continues after the efficient action of a parasiticide, the patient may experience some delay before attaining complete restoration to health.

Demodex Folliculorum.

This parasite, known also as the steatozoön, or acarus folliculorum, was discovered by Simon, in 1842. It is a microscopic creature in

FIG. 87.



Demodex folliculorum.

the form of an elongated and jointed worm, with head separated from the thorax, and eight legs, four on a side, each with three articulations, and terminating in three small hooklets. The posterior extremity of the body is a vermiform appendage, terminating in a conical point.

The demodex is found long after birth upon the free surface of the skin, those parts particularly where the sebaceous glands are large, and on patients affected with acne or seborrhœa oleosa, as well as upon those free from all evidence of disease. It is encountered also in the substance of the comedo plug, where at times from five to twenty may be discovered in a single follicle. It is, however, in no case the source of disease. A demodex, which is considered to be a variety of that discovered upon the skin of man, infests dogs, mice, and other lower animals ; and may be, in the latter, the source of disease characterized by furuncular lesions, abscess, and even fatal results. None of these parasites are, however, known to be transmissible to man.

***Pulex Penetrans* (*Rhinocoprion Penetrans*, *Sarcopsylla* Westwood).**

The sand-flea is a minute, brownish-red, egg-shaped parasite which penetrates the skin of man and of the lower animals, including rats and mice. It is encountered chiefly in tropical countries, but is said also to exist in higher latitudes, even in some of the southern of the United States. Fecundated females only attack the skin, in man usually about the toes or near the nails, entrance being effected with scarcely painful pricking sensations. In the course of from five to ten days, a painful œdema with pustulation follows, occasionally accompanied by a lymphangitis or severer symptoms in the form of gangrenous abscesses. These sequelæ are said to result from the distention of the ovary of the parasite, which may exceed fivefold the original dimensions of the insect. The treatment of the disease is the extraction of the flea by the aid of a heated needle, whereby it is simultaneously destroyed. The resulting wound is often also cauterized.

***Filaria Medinensis* (*Filaria Sanguinis*, Guinea Worm).**

This parasite is encountered in the tissues only of those who have resided in tropical latitudes, more particularly in Egypt, Persia, India, and Arabia. It is occasionally encountered in other countries after introduction by affected individuals. When it attacks the skin, it forms a painful, œdematous, furuncular or bullous lesion, which bursts; and in the fluid contents exuded, a portion of the worm becomes visible. Often the systemic conditions which accompany this lesion are grave. Febrile, convulsive, or septicæmic phenomena may then be followed by fistulous or gangrenous results in the seat of the disease.

It was long claimed that the parasite entered the skin from without, but there is reason to disbelieve this assertion. Observers have lately demonstrated the fact that the parent worm contains, in that part of the body which is appended to the head, thousands of minute worms contained in a sarcodiform envelope. These measure 0.05 by 0.2 mm., each exhibiting a thickened cephalic extremity without a buccal aperture, and a pointed caudal termination. It is impossible for such a creature to penetrate the skin by the accidents usually assigned as the occasion of its introduction; for example, by bathing in infested water, and walking upon surfaces where the parasites abound. It is much more reasonable to conclude that the latter are ingested, either with the food, or, more probably, with the water, and that from the alimentary canal they find their way to the other structures which they attack. They can certainly traverse the blood-vascular channels. The worm has been photographed *in situ*, in the bloodvessels where it was discovered. It is possible, however, that the parasites may be, in rare instances, introduced into the skin directly through solutions of continuity produced in walking, bathing, and other occupations, when the foot or ankle is accidentally

abraded, or where indeed there has been a preëxisting ulcer or sore. Manson¹ believes that the parent filaria inhabits the lymphatic trunks; and reports a case of lymph-serotum in which a long slender worm, resembling catgut in appearance and of the thickness of a medium-sized horse-hair, was found filled with embryos in different stages of development. After the removal of about two inches of the parasite, the worm was broken. It has also been recognized in the sac of the tunica vaginalis affected with hydrocele.

The mosquito is said to act as a carrier; sucking the filaria with the blood of an affected person, it afterward deposits the ova or embryos, which have meantime hatched, in the water where it lays its own eggs. These embryos are then swallowed with the drinking-water by another victim; and so the cycle of disease is completed. It is a nocturnal parasite. During the day the filariæ lie dormant at some point in the victim's circulation, but at night they sally forth and rove the current of the blood the night long.

The parent worm, fully developed, may measure two feet or more in length; and, being usually packed full of young, it is a matter of great importance not to injure it in any efforts made for the purpose of its extraction. Forbes Dick² describes the four methods chiefly employed for the purpose of obtaining relief, as operating on the principle, either to "stink, coax, suck, or pull the worm out." The first is usually accomplished by the aid of assafœtida poultices, and is the least desirable of all. A combination of the others is preferred, the warmth, moisture, and protection afforded by the poultice first attracting the worm to the surface. When this result is obtained, an incision is made, and usually a foot or more of the worm is at once liberated. According to Dick, when the worm can be felt at two or more places, the point for incision is at the third part of its anterior extremity, which is always furthest from the heart of the patient. After this the worm is carefully wound about an aneurismal needle or similar implement, and traction very gently made upon it for from ten to fifteen hours. If it cease to yield to this force, the traction should never be increased, lest the parasite seize the adjacent tissues with its mouth. Suction by the natives is accomplished through trumpet-shaped tubes.

Cysticercus Cellulosæ.

Cysticerci have been recognized in the skin and subcutaneous tissues by Rokitansky, Lewin, Guttmann, Schiff, Ferréol, Duguet, and other observers. In such cases, one or several roundish, firm, elastic, cutaneous or subcutaneous, pea to walnut-sized tumors, isolated or disseminated, unproductive of pain, project from the general level, and are enveloped by an unaltered integument. They may remain in this condition without change for years; and may accompany cysticerci of the brain and other portions of the body, productive of

¹ Lancet, 1880, p. 10.

² British Medical Journal, 1880, p. 207.

the serious disturbance of the economy which such invasion may determine. If the skin tumors be opened and their contents examined, the parasite will be recognized as an ampulliform sac, with a cephalic appendage, reëntrant or projecting, and provided with four suckers and a coronal of hooklets. By no external characteristics could such tumors be distinguished from others of similar size and external appearance. Only in the rare case of nervous complication, could a suspicion arise based upon the real character of the disorder. Respecting this matter, however, the diagnostician is in no worse position than when called upon to recognize cysticeri of the viscera. On more than one occasion, cysticeri of the liver have been distinguished during life, and subsequently removed by operative procedures.

The diagnosis is from gumma, lipoma, epithelioma, and sarcoma. The first occurs only in the syphilitic; the second has a peculiarly uneven surface and firm feeling; the third is largely facial in situation; and the last is of a plainly malignant character and relatively rapid career.

Echinococcus.

Weyl and Geber state that this parasite, not mentioned in dermatological treatises, is found often in the human skin. Of 336 cases reported by Davaine, the parasite occurred thirty times in muscular and subcutaneous tissues, more often in women than in men. The vesicles produce a disagreeable sensation of tension, and undergo fatty or other metamorphosis after the death of the encapsulated parasite, which usually occurs in from one to two years. Exploration of the superficially seated fluctuating tumor, covered by unaltered integument, usually demonstrates its nature.

Distoma Hepaticum.

Küchenmeister (l. c.) reports three instances in which the embryos of the large liver fluke were encapsulated in subcutaneous tissue. The tumors were painful or painless and occurred on the head, trunk, and extremities.

Leptus. (Leptus Autumnalis, Harvest Bug.)

This is a minute, reddish, or yellowish-red insect of the family of the trombidæ, visible to the naked eye, and found in summer and autumn clinging to bushes and grasses. It is found both in this country and in Europe. It attacks man only after its accidental location upon the skin, where it perishes in the course of a few hours. In such situations, however, it induces considerable irritation, betrayed in erythematous, urticarial, papular, and even eczematous symptoms, accompanied by pruritus of various grades. It may be seen in the skin as an orange-reddish or brick-reddish point, which represents often the body of the insect, its head being buried in the aperture of a follicle beneath. Examined after extraction, it is seen to have a

relatively large cephalic extremity. It has a short, cylindrical, and conical haustellum, composed of fused double maxillæ; and two strong, hooked, five-jointed palpi, which can be rolled up. There are also two hatchet-like mandibles. It has a well-rounded body

FIG. 88.



Leptus. (After KÜCHENMEISTER.)

FIG. 89.

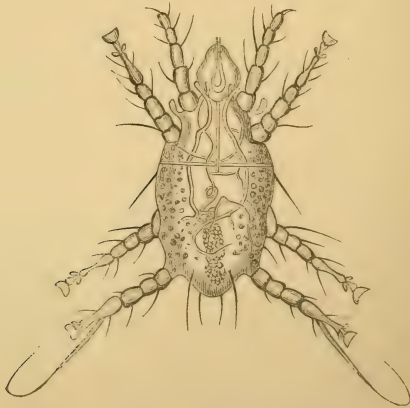


Leptus autumnalis (harvest bug).

0.3558 mm. long, and 0.32 mm. broad, provided with three pairs of legs. It is found upon the lower limbs particularly, but also upon the scalp and every other part of the body. According to Duhring, children are particularly liable to its encroachments. The disorder is relieved by the application of a little balsam of Peru in olive oil, carbolated oil, spirit of camphor, or other mild stimulant or parasiticide.

Kriptoptes Monunguiculosis.

FIG. 90.



Acarus hordei.

Acarus hordei is the name given by Weyl and Geber to the larva of a mite that annoys laborers in barley. It is yellowish-white, oblong or oval in form, averaging 0.022 mm. in length. There is a protrudible tubular haustellum, enclosed by serrated mandibles. On each side are five-jointed palpi. There are four pairs of feet; two on the cephalo-thorax; two, abdominal in situation; all articulated to the epimeres. The tarsus of the first pair terminates in hooked claws; the others have haustellum disks on stems. Between the first and second pairs are swinging clubs, indicating the larval condition.

Dipterous Larvæ in and beneath the Human Skin.

There is no dipterous insect peculiar to man alone, but a number of cases are on record where the ova of several species of *cæstrus* have been deposited in the skin, and larvæ been subsequently formed. The *cæstrus bovis*,^{*} or gad-fly, is the most common of these. Usually after the ova are deposited by the insect, a painful swelling occurs

FIG. 91.

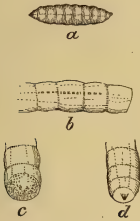


FIG. 92.



Cæstrus. *a*, the larva, natural size; *b*, some of the segments seen under a lens, and showing the lines of minute projection; *c*, and *d*, the terminal ends of the insect. (After ABRAHAM.)

Larvæ removed from the body of a child. Of the exact size, after several days in alcohol; *a*, as seen from side; *b*, as seen from beneath.

which may change its place from one point to another. When supuration is induced, the larvæ can be removed by pressure upon the boil. Walter Smith,¹ of Dublin, has lately described such a case, where the swelling upon the ankle of a girl twelve years old, moved to the elbow, and there discharged a white grub nearly an inch in length. Birdsall² has described a specimen sent him from Gaboon, on the West Coast of Africa, in which two worms escaped from between the middle and the ring fingers of one hand; another workman having had a similar accident occur upon the leg. The fly whose ova had been deposited in these two cases, was said to attack the gorilla; and the Pawnees, a tribe of Indians engaged in capturing these animals, were reported as being very commonly troubled in the same way. The worms sent to Dr. Birdsall were

¹ See Report of Internat. Med. Congress, Arch. of Derm., January, 1882.

² N. Y. Med. Record, March 18, 1882, p. 298.

respectively one-fourth and one-half of an inch in length, and about one-eighth of an inch in thickness.

Abraham, of Dublin, has also examined and reported upon a similar case, the specimen having been sent to the editor of the *London Medical Press and Circular*, from Portsalon, Letterkenny.

Several specimens illustrating these accidents have been sent to the author from neighboring States. The larvæ represented in the sub-joined sketch were removed from the body of an infant in Nebraska. The muscidæ (flesh, house, stable, dung, and other flies) have defective maxillæ, and are, therefore, unable to wound the uninjured skin. The pregnant female seeks, therefore, to deposit her ova where the larvæ, equally unprovided with developed jaws, can most readily secure nutriment. Hence, open wounds and the tender skins of newly born infants when exposed in the summer season, are liable to become the depots of such ova.

The ova of other species of muscidæ and cæstridæ (according to Geber, of the former, *Lucilia Cæsar*, in America; *Stomoxys Calcitrans*, in Africa; and *Sarcophila Wohlfati*, in Russia; of the latter, *Dermatobia Noxalis*, *Cutrebra*, and *Hypoderma*) deposit ova or larvæ in the skin by their special apparatus for puncture, occasionally also the hatched larva works its way unaided from the epidermis to the subcutaneous tissue. Severe cases are reported from Texas, where larvæ have been expelled in great number from the nares after inhalation of chloroform.

***Ixodes* (Wood-tick).**

Several species of ticks are recognized, such as the *IXODES HUMANUS*, *IXODES BOVIS* (cattle-tick), *IXODES AMERICANUS*, *IXODES MARGINATUS*, *IXODES UNIPUNCTATUS*, and the *IXODES RICINUS* (wood-beetle), the last-named being more common in Europe. In this country they are found in wooded districts, especially those where pine and fir trees are growing. The female attacks the skin by thrusting into it her beak, armed on either side with a maxillo-labial projection having recurved hooklets, the mandibles also presenting similar obstacles to the forcible extraction of the head. After suction of the blood from beneath, the body of the tick swells to the size of a pea or small bean, and may remain for several days in this position. At such times the parasite may be mistaken for a small pedunculated tumor. Forcible attempts at extraction of the intruder are liable to detach the mandibles from the body, and thus leave them as the source of future irritation, and even disagreeable inflammatory symptoms, in the site of the punctured wound. By applying over it a drop of the spirit of turpentine or benzine, the head is spontaneously retracted, and the body falls from its position. The soldiers on the plains of our own country, accomplish the same end with the juice of tobacco. The sensation produced at the moment of the insertion of the beak of the insect, is said to be so trifling as often to pass unnoticed.

Pediculosis.

Lat. *pediculus*, a little foot.

Pediculosis is a contagious affection, characterized by the presence of lice upon the skin and hairs, by the wounds inflicted by the parasites, and by the scratching which the resulting pruritus excites.

This disorder is also termed Phtheiriasis, Morbus Pediculosis, and Lousiness.

Symptoms.—Lice belong to the order, *rhynchotta*; subdivision, *parasitæ*; family, *pediculidæ*. They are apterous, provided each with two eyes, and have an oral appendage capable of both inflicting wounds and producing suction. The lice infesting the human body are recognized as belonging to three varieties, those of the head, of the body, and of the pubes. Of the disorders to which they give rise it may be said in general, that the lesions presented differ somewhat according to the region invaded, the multiplicity of the intruders, and the length of time during which their ravages have been inflicted. Such lesions, however, are those which have been already studied in connection with eczema, urticaria, and the similar disorders resulting from external irritation. Their special peculiarities in pediculosis, are owing solely to the nature of the exciting cause and the mode of its operation.

Pediculosis Capillitii (Parasite, the Head Louse).

The head louse is usually of a grayish color, but differs slightly with the hue of the hairs over the part which it frequents. Its head presents indistinctly the outline of a trefoil, and is provided with two hairy antennæ, each of five articulations, and two eyes. Its thorax is relatively narrow, with six tracheal stigmata and three hairy legs on either side, the latter provided with tarsal hooklets. The abdomen is divided into seven segments, defined by blackish indentations on either side. The males are fewer and smaller than the females, and present upon the dorsum an ano-genital orifice and a large conoidal penis and testes. The females are provided with ovaries, oviducts which terminate in a vagina having a ventral orifice, and an anal aperture in the terminal abdominal segment. Coupling is performed with the male beneath.

The ova or "nits" are whitish bodies of oval contour, which are glued to the hairs by a cylindriform sheath of chitine, which completely encases the circumference of each filament. They are deposited in series, as the female traverses the hair from its insertion to its distal extremity, so that the oldest are in general the nearest to the scalp. The young escape from the ova in from three to eight days,

FIG. 93.



Pediculus capillitii — male.
(After KÜCHENMEISTER.)

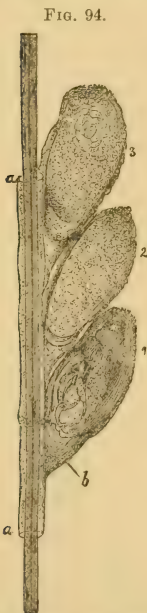
and arrive at maturity in from eighteen to twenty days. A single female can, according to Kaposi, lay fifty eggs in six days, and thus in eight weeks have an entire progeny of five thousand lice.

Head lice usually limit their habitat to the scalp, though, rarely, in elderly men with long hair reaching to a full beard, they may encroach upon the latter. They are found upon every portion of the scalp, but find the region of the greatest protection upon the occiput. They infest children and adults of both sexes, but are best furnished with lodgement in the scalps of girls and women covered by long and luxuriant hairs.

The lesions observed upon a scalp thus inhabited, vary according to the age and vigor of the colony; and are few or numerous, discrete or confluent pustules or bullæ; surfaces excoriated by scratching and oozing with serum, pus, or blood: crusts varying in character according to the nature of the desiccated exudate and sebaceous matters. Often the picture presented is a conglomerate of an artificial eczema and seborrhœa.

The ova, or "nits," are usually abundant upon the hairs of an infested head, and will scarcely escape the attention of a close observer. They are not to be mistaken for the exfoliated, epithelial, and fatty plates seen in seborrhœa sicca, disseminated among the hairs, and often perforated by hairy filaments, since the former are firmly glued in position, and resist the bristles of the hair-brush. The peculiarly nauseating odor also of the louse-infested, pustule- and crust-covered scalp is not to be confounded with that perceived in favus of the same region.

In exaggerated cases, the post-cervical ganglia express, by their increase in size, the degree to which the local irritation has been pushed. The itching is usually severe, and, in cases of long persistence in children, may produce the usual systemic symptoms of prolonged local irritation. Children and patients of impoverished health and with poor hygienic surroundings, are thought to exhibit the disease in severer grades than others; but this, if indeed a fact, must be at least in part due rather to the more favorable conditions for the development and multiplication of the parasites, which are presented in filth accumulation and lack of



Ova of the head-louse attached to hair. (After KAPOSI.)

cleanliness. In the public charities of large cities, children are presented every week affected with pediculosis capillitii, who come from

the very lowest social grades of population and from the filthiest quarters. Among these it cannot be observed that the general health of the patients is a factor of weight in the severity of the affection.

The diagnosis of pediculosis capillitii is a matter of considerable importance, however simple of accomplishment, since many cases of supposed "pustular eczema of the scalp" have been treated vainly by one physician with internal remedies addressed to the systemic vice assumed to be responsible for the disease which another has relieved after the discovery of a few head-lice. The hairs should always be raised and separated, the scalp carefully inspected, and the presence of any parasites, and especially ova or "nits" fastened to the hairs, ascertained. Whether the lice have preceded or followed the eczematous state (and each of these conditions may be noted) is a matter of minor importance.

The indications in the treatment of pediculosis capillitii are the destruction of all parasites with their ova, and the relief of the induced inflammatory condition of the scalp. Generally, the removal of the former is followed by the spontaneous disappearance of the latter.

For the destruction of the lice, the most popular remedy, in this country certainly, is petroleum [not kerosene], pure or with equal parts of the balsam of Peru, which gives it a more agreeable perfume, poured over the scalp in quantity sufficient to cover it without overflow upon the brow, temples, and neck. It should be rubbed in with a piece of white (undyed) flannel. At the end of from twelve to twenty-four hours the lice are destroyed, and the ova rendered incapable of development. This treatment is followed by a thorough shampoo with tincture of soap, or toilet soap and hot water; after this operation the tender scalp may require a bland unguent, such as vaseline, or a small quantity of scented castor oil, either pure or in combination with spirits of wine. Kaposi employs petroleum as a parasiticide in combination with olive oil and balsam of Peru: five parts of the first, two and a half of the second, and one of the third. Cutting the hair of women and girls is quite unnecessary, as patience and gentleness with the use of the comb will finally disentangle the most matted masses after the lice have been destroyed. Other remedies are employed locally for a similar purpose, of which the most popular are staphysagria, one drachm (4.) of the powdered seeds to the ounce (32.) of vaseline, but especially in decoction; the tincture of cocculus Indicus; carbolic acid in oil or water; sabadilla; the ethereal oils; and mercurials in ointment and solution, including the mercuric oleates. In cases where but a few parasites have found their way to the scalp, and that recently, nothing more is requisite than a careful use of the fine-tooth comb, scrubbing the scalp with a strongly scented alcoholic perfume, and a final bathing with soap and hot water.

The ova adhering firmly to the hairs can be removed by soda or borax lotions, alcoholic solutions, or dilute acetic acid, which are

solvents for the gluey material by which the "nits" are secured in place.

Pediculosis Corporis (Parasite, the Body Louse).

The parasite in this disorder inhabits exclusively the clothing worn next the body, and is hence often designated as the *PEDICULUS VESTIMENTI*. In anatomical peculiarities it resembles the *pediculus capillitii* already described, being, however, larger in size, the females also larger than the males. The thorax is separated from the abdomen, the latter being hairy, yellowish at the margins, and provided with eight segments. The eyes are black, and very prominent in both sexes; and the periods requisite for the maturing of the ova and young are those named respectively in connection with head lice. In color they vary slightly from a dirty-white to a light grayish hue, when undistended with blood.

In the reverse of this last-named condition, they may be recognized as having a dull reddish or purplish color, when they are also more indolent in their movements. They measure 2 to 3 mm. in length, and 1 to 1.5 mm. in breadth. The female lays from seventy to eighty eggs, from which the young are produced in from three to eight days, and are capable of reproduction in a fortnight more.

They inhabit the seams of undergarments, where their ova are also deposited, but in coarse woollen or flannel shirts they find sufficient shelter in the meshes of the material of which the clothing is made. This they leave temporarily, solely for the purpose of obtaining nutriment from the skin

of their host, and hence are not often recognized upon the free surface of the integument. Upon rapid removal of the clothing of an infested individual, a few may occasionally be encountered, hastily seeking a place of refuge, though this is rather the exception to the rule. It thus may happen that a louse-bitten patient may not exhibit the true source of his troubles to his physician after a recent and complete change of clothing. The greater then the importance of being able to recognize the clinical features of the malady in the absence of the parasite. This is comparatively easy to one who has made himself familiar with the symptoms of the disorder.

The manner in which the louse is enabled to supply itself with the blood of man has been carefully studied by Swammerdam, Landois, Schjölde, and Tilbury Fox. The last-named author has summarized the observations of the others, and the results he gives may be briefly described as follows:

Swammerdam's original view that the louse is not provided with

FIG. 95.



Pediculus corporis — female.
(After KÜCHENMEISTER.)

mandibles by which it can inflict a wound, but with an haustellum by which the blood is sucked up to the head of the parasite, is confirmed by Schjödte. This observer, examining the head of the louse from behind with reflected light, discovered that the parts of the head resembling mandibles in appearance, were really situated beneath its skin. He applied to the integument lice which had been previously starved, and watched each as with retracted limbs, arched back, and head inclined obliquely downward, it repeatedly projected forward and retracted through the extreme end of its head a "small, dark, narrow organ," by which it was finally firmly held in place. A triangular blood-red point soon became visible in front of the eyes, rapidly and alternately contracting and dilating, and followed by energetic peristalsis of the gastro-intestinal tract. If the head then be cut off in front of the eyes, and the haustellum carefully extracted, the latter can be recognized as a brownish protrusion, armed with terminal recurved hooks, from which depends a delicate membranous tube varying in length.

"It seems that the mouth is like that in the rhynchotta generally, but differs in the circumstance that the labium is capable of being retracted into the upper part of the head, and has a fold in it when so retracted. In order to strengthen this part, a flat band of chitine is placed on the under surface; and it is thinner in the middle in order that it may bend and fold a little when the skin is not extended by the lower lip. The latter consists of two hard lateral pieces, of which the fore ends are united by a membrane, so that they form a tube, of which the internal covering is a continuation of the elastic membrane on the top of the head. Inside its orifice are a number of small hooks, which assume different positions according to the degree of the protrusion; and if this is pushed to its highest point, they form a collar of hooks curved backward like barbs. The pediculus first inserts its labium into a sweat pore and protrudes the lip. When the hooks get hold of the parts around, then the first pair of setæ (the real mandibles transformed) are protruded, and these are toward the point invested by membrane so as to form a closed tube, from which again is exerted a second pair of setæ or maxillæ, which form a tube and end in four small lobes placed crosswise. The whole forms a membranous tube, along the walls of which retiform mandibles and maxillæ are placed as long narrow bands of chitine. This tube can be lengthened or shortened at pleasure."

This explanation of the mode in which the louse attacks the skin, is probably true of each of the varieties which infest the human body. Fox well suggests that the invaded follicle, after the withdrawal of the haustellum, becomes the seat of a circumscribed hemorrhage. None of the anatomical peculiarities described above will, however, completely explain, it seems to the author, the characteristic pruritus of pediculosis corporis, for it can scarcely be questioned that it is not merely at the moment of attack or penetration that the suffering of the victim is greatest. The pruritic condition of the louse-wound persists, indeed usually attains its maximum, after the

withdrawal of the pediculus, and is without doubt greater than that awakened by merely mechanical puncture of the epidermis. Any one who will compare the skin of a louse-infested patient with one who has been subjected to the acupuncture process employed among the lower classes of Germans, and by them known as "baunscheid-tismus," can convince himself of this fact.

The lesions seen on the skin thus invaded are proportioned, as in pediculosis capillitii, to the size and age of the colony of parasites. Excoriations, usually linear, occasionally circumscribed, varying in depth and length, radiate irregularly from each louse wound, and may be commingled with minute papules, transitory wheals, or, in rare, exaggerated cases, with the typical signs of diffuse eczema. All are produced by scratching in order to relieve the pruritus. Crusts, more often composed of desiccated blood, rarely of serum or pus, minute and capping the wounded follicle, or linear and coextensive with the excoriations produced by the scratching, are generally conspicuous. In older cases these lesions are followed by the usual sequel, pigmentation, the latter being a partial indication of lousiness which has been long tolerated.

In this country, it is rare to note the severe and intense forms of the malady resulting from long-continued neglect of the skin, which occur in Germany. In such cases, dermatitis, rupioid crusts, furuncles, abscesses, carbuncles, and ulcers form, bequeathing to the skin serious disorders, which may persist for weeks after the clothing has been freed from lice, and finally leave a deep-tinted, diffuse pigmentation of the surface, suggesting that of the negro or of the patient affected with Addison's disease.

The diagnosis is a matter of importance. Patients will visit physicians, claiming that they have suffered from a "humor of the blood," who have been swallowing drugs for a long period of time, in the vain hope of obtaining relief, with lice, at the very moment of uttering the complaint, crawling over their persons. Even those of good social position and habits of cleanliness, will occasionally suffer after the accidental contacts in the street- or railway-car, the hotel, the theatre, or other places of public resort. There are certain points to be carefully noted in this connection. Excoriations over the nucha, about the shoulders, loins, buttocks, and external faces of the thighs, all visible at the same time, are highly suspicious symptoms; as an eczema, when equally diffuse, is sure to be accompanied at some point by perfectly classical features; and generalized pruritus is exceedingly rare, its localized varieties concerning chiefly the regions about the mucous outlets of the body. There is a picture highly suggestive of pediculosis exposed to the eye when the trunk of an infested patient is viewed from behind. The lesions are more discrete, more irregularly distributed, and more intermingled with long scratch-marks, reaching, for example, quite over the point of one shoulder, than in most disorders with which this could be confounded. Here and there minute blood specks tell a significant tale. The author has occasionally the opportunity to exhibit patients at the clinic, with

syphilodermata interspersed among characteristic lesions of pediculosis corporis; and often the students themselves in such cases point out the particular symptoms referable to the separate disorders present.

In private practice it is usually advisable, for obvious reasons, to secure the *corpus delicti* before informing the sufferer of the nature of his or her complaint. In the case of male patients, it is well to take a position in the rear, and when the underclothing is drawn well up from the shoulders, a careful scrutiny of it may be made while the applicant for relief supposes that attention is directed instead to his person.

The treatment of the disorder concerns largely the clothing. The latter requires immersion in boiling water, or may be wrapped in paper and subjected to a high temperature in an oven, 160°–175° F., sufficient to destroy the lice and their ova. In case of recurrence of the malady, the clothing is to be again subjected to the same process. Usually the resulting irritation of the skin promptly subsides. When several members of one family suffer, all clothing worn must be subjected to similar treatment. If the skin has been unusually tormented by scratching, warm alkaline baths will afford some comfort, and may be followed by a bland unguent or one of the dusting powders. For immediate use, before the clothing can be rid of the intruders, a parasiticide ointment can be ordered as recommended by Duhring, prepared by adding two drachms (8.) of freshly powdered staphysagria to the ounce (32.) of hot lard, strained and cooled. The surface of the skin may also be anointed with carbolic acid dissolved in oil or water.

Pediculosis Pubis (Parasite, the Pubic Louse).

In this disorder the genital region is chiefly involved, though in exceptional cases all the hairy portions of the skin may be invaded, including the eyebrows, eyelashes, axillæ, and the moustache, beard, hairy chest, and hairy legs of the male. The body of the pubic louse is smaller than either of those described above. Its head is also attached more closely to its thorax, having a shape which is compared to that of a violin. The thorax is not distinctly separated from the abdomen and of the six stout legs that spring from it, the second and third pair are conspicuously powerful, and armed with relatively large hooks at the tarsal extremity. The resemblance of the latter to the claws of a crab, has given to this creature the common name of "crab-louse." The lateral abdominal indentations are much less distinct than in the other varieties; and the blackish marginal marks of the latter are here scarcely apparent. The abdomen is also much elongated, having a more rounded contour, and being provided on its lateral borders with eight short conical feet, terminating in bristles. It is also distinguished from the others of its family by the length of its anal bristles, and by the peculiar shield-shaped carapace which covers nearly one-half of the dorsum. The

male is 0.8 and 1. mm. long, and 0.5 to 0.7 mm. in width, being thus from 1. to 1.5 mm. smaller than the female.

The pubic louse is much more inactive than the others, and does not ordinarily escape its pursuer. It buries its head deeply in a follicular orifice, and steadies itself in this position, where it may remain for some time, by grasping the adjacent hairs with its short and powerful claws. A moderate degree of force is required for its dislodgement from this favorite position, and when removed its grasp of the hair to which it clings is so firm that the latter usually slides for its entire length through the claw of the louse. Occasionally they may be found creeping over the skin or clinging to hairs at a distance from the surface. The pyriform ova are smaller than those of the head louse, though having a similar color; and are, like the latter, attached to the hairs by a firm chitinous glue.

Pubic lice are usually acquired during the contacts incidental to the sexual act; and are hence more frequently encountered among adults, but may, without any question, be, more rarely, transmitted mediately by occupation of beds and covering which have been used by infested persons. They are thus, though very rarely, found in children of both sexes.

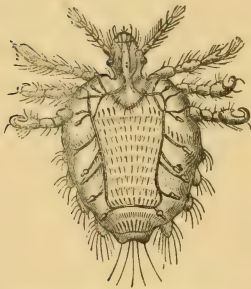


FIG. 96.

Pediculus pubis. (After SCHMARD.)

The lesions induced are those produced by the wounds inflicted by the parasites and by consequent scratching, though the latter is rarely intense. In a few cases, one may see a severe eczema follow the ravages of the lice, but in such event the complication is chiefly owing to, unnecessarily severe self-treatment of the disorder, patients being often morbidly anxious in their efforts to rid themselves of the pests.

The diagnosis of pediculosis pubis is between eczema and pruritus genitalium. The disease last named is, in both sexes, accompanied by itching, and that often of intense grade, but when this is diffuse and symmetrical in distribution, it is not limited particularly to the hairy parts. Eczema of the genitals is not often produced by parasites of that region, and may be readily recognized by its characteristic features. Both disorders are often indeed limited to symmetrical patches upon the side of the scrotum or one labium. The discovery of the parasite, however, in pediculosis pubis, is always essential, and requires merely careful inspection and a good light. The lice may be recognized either at or near the point of implantation of the hairs, which latter also display ova except in very recently infested individuals. The reddish excrement of the parasites mingled with scratch-marks and excoriated papules of small size, may also be observed. Patients are often made aware of their condition by a sensation of crawling over the parts. Scratching of the pubic

region in adults of both sexes, should awaken some suspicion of the disorder.

The disease is commonly treated by the topical application of mercurial ointment, which is a disagreeable and rather filthy medication for this locality. The ten per cent. oleate may be substituted for it, or, even preferably, corrosive sublimate in solution, three to four grains (0.266–32.) to the ounce. Petroleum and olive oil with the balsam of Peru, in the proportions given above in connection with the subject of pediculosis capillitii, is an effective combination. Staphysagria, carbolic acid, cocculus indicus, or one of the other substances used in the disorders occasioned by the animal parasites, may be substituted if desired.

It is usually better to defer bathing till the remedy selected for the destruction of the lice has been applied on several occasions, after which a warm water and soap ablution will commonly end the trouble. It is needless to clip the pubic hairs. Should an eczematous disorder remain, it requires appropriate treatment, including hot bathing and the blander unguents.

PEDICULI AND ACARI TRANSFERRED TO MAN FROM THE LOWER ANIMALS rarely thrive in such uncongenial soil, but as a matter of exception, occasionally survive such transfer. Thus Goldsmith,¹ of Vermont, reports the case of a woman affected with intense pruritus, who after sweating profusely observed numbers of pigeon- or hen-lice emerging from the sweat-pores. Mégnin² reports similar cases under the title PRURIGO DERMANYSSIQUE, the dermanyssus avium or gallinæ being the acarus infesting domesticated fowls. The disorder is said to be at times epidemic in the vicinity of aviaries and pigeon-cotes, but is always of trifling severity.

Cimex Lectularius (Acanthia Lectularia, Bugs, or Bed-bugs).

Strictly speaking, the bug is not a parasite of man, but finds its congenial habitat in the bed, bedding, bed covering, walls and floors of apartments occupied by persons of both sexes and all ages. It infests also furniture, including chairs, sofas, and the cushions of seats occupied in public vehicles and hotels. From the cracks, crevices, seams, folds, or other protected points where it has found lodgement, it emerges usually at night, for the purpose of securing its nutriment in the blood of its victims. It is a pest as ancient as the day in which Dioscorides wrote, since he described it.

The insect has a rusty or reddish color, this differing slightly according as it is or is not distended with blood. It is an apterous member of the order CIMICIDÆ; and is provided with a blunt-pointed head, broadly attached to the thorax; two long slender antennæ; and a three-jointed haustellum capable of projection and

¹ Louisville Med. News, Dec. 31, 1881, p. 320.

² Les parasites et les maladies parasitaires chez l'homme, les animaux domestiques, etc., Paris, 1880.

retraction beneath the head. There are three pairs of long slender legs by which it is enabled to accomplish rapid movements, two thoracic and four abdominal. The abdomen is broad, flattened, and oval in shape, with nine segments. The parasite emits a disgusting odor, which is much more distinct when it is crushed.

The wound inflicted by the bug is accomplished with or without the consciousness of its victim, who in the former case is made aware of a transitory prick or sting. Soon after, decidedly pruritic burning or stinging sensations are experienced; and the wound becomes the seat of an urticarial wheal. The lesion then, examined soon after the infliction of the wound, is seen to be small pea- to bean-sized, and in the form of an elevated and circumscribed "button" or papulo-tubercle, either whitish in the centre, or exhibiting there also the hyperæmia which distinguishes its peripheral zone. After it has begun to subside and lose its acute features, which may not occur for several hours if it be irritated by rubbing or scratching, a minute reddish puncture may be seen marking the original site of the wound.

The lesions are usually multiple even when but a single assailant has been present, the insect taking apparent delight in obtaining its nutriment from several distinct points upon one surface. In this way at times its course upon the integument may be for a short distance traced. In cases where the pests are numerous, as in filthy dwellings, prisons, ships, and barracks, and when infants have been attacked, the resulting eruption is often greatly masked by the scratching and resulting excoriations of the surface. In this way vesicles, pustules, crusts, purpuric blotches, and even skin infiltrations may be found, instead of the rosy or light reddish typical wheals of recent cases in patients with fair clean skins. The diagnosis is a matter of importance, and upon it may hang a professional reputation. Physicians are often consulted respecting these lesions by patients who believe themselves to be suffering from "humors," exanthemata, and even syphilis. The insect attacks the parts of the body to which access is easy as the patient sits or reclines on the back or side, including the buttocks, thighs, shoulders, loins, and neck, in that order of frequency, rather more largely than the legs, much less frequently the scalp, face, and genitalia. The eruption is not to be confounded with *urticaria ab ingestis*, which is more apt to be symmetrical in disposition.

It is best relieved by the topical application of spirits of camphor, alcohol, weak carbolated lotions, or solutions of boric acid, one drachm to the pint. Untreated, it disappears spontaneously when the source of the disorder is removed. The most effective treatment is by prophylaxis, with soap and hot water, of all accessories of the dwelling-house inhabitable by the insects. Once discovered to be present, infested furniture should be scrubbed in all its crevices with a saturated solution of corrosive sublimate in alcohol, and bed-clothing immersed in boiling water.

OTHER INSECTS, which may persistently or only occasionally attack the human skin, are: the mosquito and gnat (*CULEX PIPPIENS*),

midges (TIPULIDÆ, SIMULIA); bees (APES MELLIFERÆ); wasps (VESPIDÆ), and fleas (PULEX IRRITANS).

Pulex Irritans.

The FLEA which specially attacks man is a brownish-red insect, having a laterally compressed body, an oral haustellum, serrated soft mandibles, a tongue sheathed in an inferior labium, and a pair of labial, four-jointed palpi. Each of the triple segments of the thorax bears a pair of five-jointed, double-clawed legs. The male is 2 to 5 millimetres in length, and 1 to 2 in breadth, the female being nearly twice that size. The female deposits her eggs in any fissure, crevice, or fold of garment or furniture which may be accessible, from which the larvæ are produced in a week. The nympha is enfolded in a cocoon, but the mature insect only preys upon man. According to Geber, it injects an irritating fluid into the skin at the moment of attack. The lesion it produces is a hæmorrhagic punctum, followed by a transitory hyperæmia and a hæmorrhagic exudation which may persist for a few hours.

Culex Pipiens, etc.

Mosquitoes, midges, etc., produce, by their bites or stings, various cutaneous lesions, including urticarial wheals, papules, ecchymoses, and in rare cases even ecchymomata. Those produced by the flea are found more often on the legs, neck, or other covered portions of the body; those of the midge and mosquito on the face, hands, and exposed parts; though, when numerous and voracious, these insects will penetrate the clothing for the purpose of obtaining blood. Severe eruptive lesions are often seen in this country on the faces and extremities of infants and children exposed during the night to the incursions of these marauders. They are usually treated locally by aqua ammoniæ or the spirits of camphor.

The bodies of immigrants newly arrived during the summer season in America, from countries where the mosquito is either rare or does not exist, often present singular and even formidable evidences of the attacks of these insects. The skin, totally unaccustomed to such depredations, and quite unprotected, will often be found greatly swollen, and of a light reddish hue, suggestive of erysipelas. Here and there bullæ are conspicuous, which add to the resemblance to the last-named disease. The features, in consequence of the tumefaction, vesiculation, and papulation, may be so swollen as to present a conspicuous deformity, and the forearms, and even the arms, seem greatly increased in size from the same cause. The feet and legs also may be, in the unconsciousness of sleep, exposed in hot weather to the depredations of these marauders, and in the same way the back, buttocks, and, rarely, even the genitalia present the same signs of inflammation. The matter of chief moment is the correct diagnosis of such cases, as many patients seeking relief under such circumstances have been mistakenly treated for disorders with which they were not affected.

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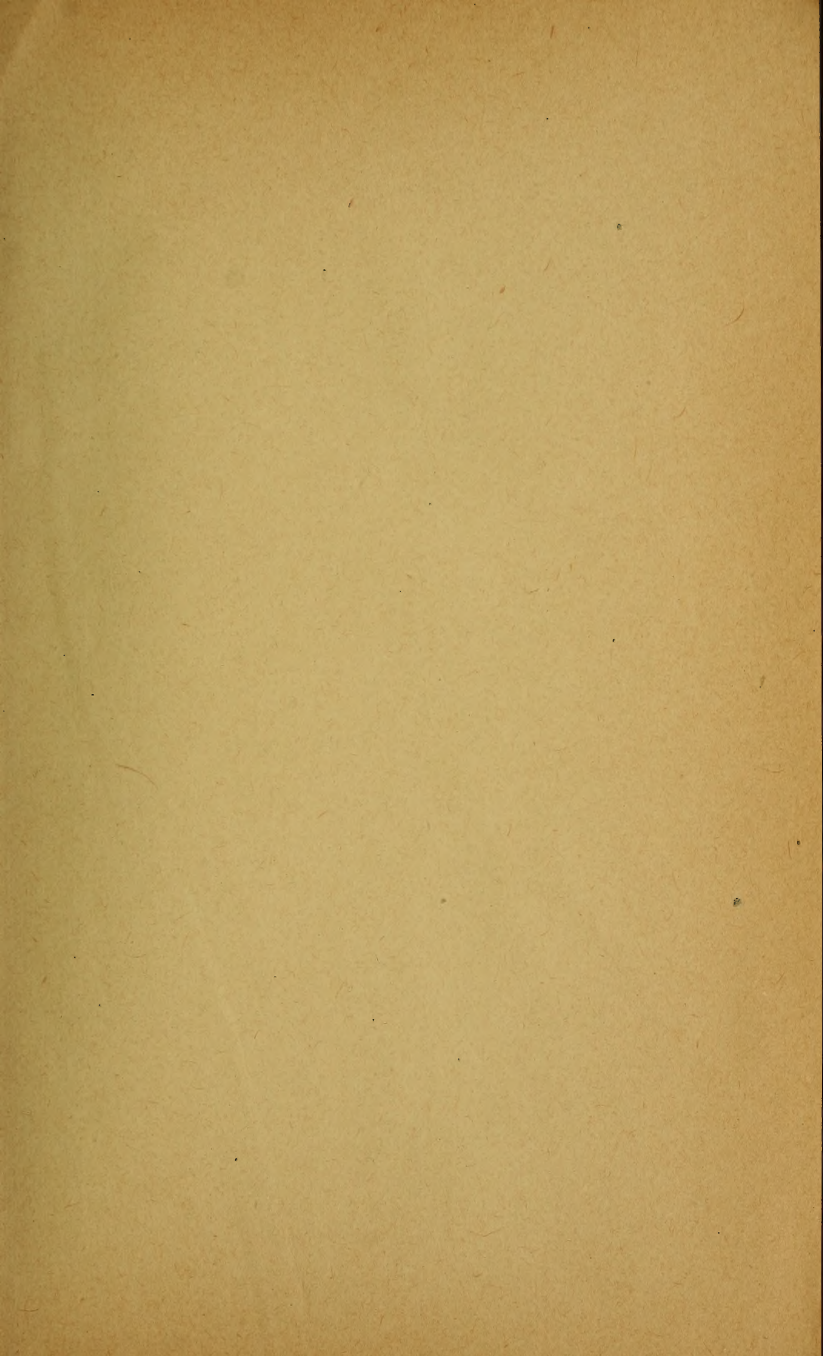
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